Uniformed Services University of the Health Sciences

Journal

2004/5 Edition

Editor-in-Chief:

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Vice President for Administration and Management

RELEVANCE · READINESS · OPTIMIZATION

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Editor's Foreword

Today, the value of USUHS to DoD and to the Nation far exceeds its original mandate to "graduate career military medical officers in an all-volunteer environment." It is a nationally-respected academic institution operating as part of the DoD culture, and is central to discovering and solving a broad range of public health and medical issues directly affecting medical and force readiness.

The need for USUHS as a guaranteed and proven source for the right physician leaders will be even more important as DoD fights future wars. Because of their selection and subsequent training, USUHS graduates seek assignment to operational units in large numbers (51% of medical officers assigned to Army Special Forces are USUHS graduates). These core competencies have value not only for our military operational mission but also in DoD's support for Homeland Security. Refereed publications report that USUHS is the premier source of training for readiness, contingencies, community and public health, and other mission imperatives.

The USUHS Graduate School of Nursing is also becoming the military's major source of advanced practice military nurse clinicians, nurse anesthetists, and nurse leaders prepared for deployment in direct support of combat operations. Agencies accrediting civilian academic health centers, schools of medicine, and graduate schools of nursing have consistently awarded USUHS accreditation *with distinction*.

***USUHS mission, location, assets and faculty are vital to the Military Health System's mission*. It** (USUHS) **directly affects our ability to train and retain a core cadre of career military health and operational medical leaders.**

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs,** Briefing on USUHS before the leadership of the Office of the Secretary of Defense, April 18, 2005, pages 1 and 3.

Mission Accomplishment. Once again, directly due to the on-going success of the USU graduates and the tremendous dedication and support of the USU faculty and staff, the Office of the Secretary of Defense (OSD), relevant military and civilian professional organizations, and the Congress of the United States, the ***2004/5 Edition of the USU Journal*** documents that the Uniformed Services University of the Health Sciences (USU) continues to meet, or exceed, its Congressionally established and Department of Defense (DoD)-directed mission. USU is mandated to provide continuity and leadership and ensure medical readiness and continuing education for the Military Health System (MHS). This is accomplished through the provision of 1) career-oriented, uniquely trained physicians, advanced practice nurses, and scientists; and, 2) specialized educational training, exercises and research that meet the military unique medical readiness training, combat contingencies, humanitarian response, and peacetime health care requirements of the MHS.

Relevance - Readiness - Optimization. Preparing each year for the next Edition of the USU Journal is an on-going assessment process of collecting data from over 70 USU activity and program leaders and department chairs and summarizing mission-related achievements and contributions focusing on: 1) ***program relevance*** -the provision of core competencies as required by the MHS; 2) the University's strategic mission, goals, and objectives (to provide continuity and leadership and ensure ***medical readiness*** for the MHS); 3) stewardship of allocated resources (***optimization***); and, 4) ***accountability for established strategic objectives***. Section I of the ***2004/5 Edition of the USU Journal*** provides an overview of one year's activities across the broad spectrum of USU's multiple programs and activities; it provides selected examples of accomplishments and contributions, which are documented throughout Sections II through VII of the ***2004/5 Edition of the USU Journal***. Officially recognized by OSD, this document will be submitted to the major stakeholders of the University along with the University's May 2005 Cost Avoidance Fact Sheet.

USU's Relevance and Mission Are Independently Validated During 2004/5. During the past year, the entire Department of Defense participated in the Base Closure and Realignment (BRAC) Process. This comprehensive analysis evaluated the military value and relevance of each entity within the DoD. ***For USU, the BRAC process offered a significant opportunity to demonstrate the relevance of its mission and its critical role in supporting Force Health Protection and National Security***. An example of OSD's confidence in USU was demonstrated on August 2, 2004, when the Secretary of Defense awarded the prestigious DoD Medal for Distinguished Civilian Service to the retiring USU President. In the citation, **The Honorable Donald Rumsfeld, Secretary of Defense,** validated the relevance of USU: ***The Department can now boast of USUHS as the Academic Health Center for the Military Health System; an asset that continues to garner global recognition for its military unique medical readiness training and its positive contributions to the security of our Nation in the critical areas of National Medical Preparedness and Public Health***.

Congressional Affirmation of USU's Value to the Nation. In a letter from the Maryland Delegation to the Secretary of Defense, signed by the **two United States Senators and six members of the United States House of Representatives,** dated April 1, 2005, the above-described recognition of USU's value to the Nation was once more clearly documented: ***USUHS' academic centers and research programs have established international credibility for: military unique medical expertise; communication and assessment of military medical humanitarian assistance training; addressing traumatic stress in uniformed and civilian health care communities; and, developing radiological countermeasures and unique training for the response to radiological emergencies. In addition, USUHS is recognized by the Association of American Medical Colleges (AAMC) as the one place where physicians of tomorrow get thorough preparation to deal with many contingencies, including the medical aspects of chemical and biological terrorism... The significance of the USUHS physicians serving three times longer than the other physician accession sources is critical to medical readiness as well as to cost-effectiveness... the MHS has been able to increasingly rely upon the USUHS SOM alumni for the provision of such essential care***.

Civilian Accrediting and Academic Professional Associations Confirm USU's Critical Relevance to the Nation. The University's relevance was also re-confirmed by the civilian academic and accrediting professional associations, during the past year. On April 27, 2005, **Jordan, J. Cohen, M.D., President of the Association of American Medical Colleges (AAMC)**, re-confirmed the AAMC's confidence in USU when he wrote to the Deputy Secretary of Defense that: ***This institutions's alumni provide the***

backbone of the senior leadership of the three services' medical departments. Faculty at USUHS are widely recognized among those of peer institutions for the excellence of the medical education program and are frequent speakers at our annual meetings on this most important topic... USUHS graduates have demonstrated a commitment to serving their country in numbers and to a degree that is unrealistic to expect from civilian physicians.

On April 28, 2005, **Roger J. Bulger, M.D., President and CEO, Association of Academic Health Centers (AHC)**, also documented national recognition of USU in his letter to the Deputy Secretary of Defense: ***This excellent health sciences university is now well established among the most highly respected of American health professional schools. I speak not only for myself but for the Association of Academic Health Centers and for the leaders of our member academic health science centers. USUHS and its leaders have worked with others in the Association of Academic Health Centers to advance the development of organized distance learning techniques in health professional education, in bioterrorism defense, in the strategizing about global health and domestically about the systemic delivery of population-based health care and preventive services, in all of which areas USUHS is in a leadership position***.

And, on May 6, 2005, **Michael D. Maves, M.D., MBA, Executive Vice President and CEO, American Medical Association (AMA),** validated both a respect for, and recognition of, the critical relevance of USU to our National Security, when he wrote to the Deputy Secretary of Defense that: ***The AMA vigorously supports the continuance of USUHS because we believe it is vital to the continued strength, morale, and operational readiness of the military services... USUHS physician specialists remain on active duty for an average of 9 years after they complete their specialty training - about three times longer than physicians trained under the Department of Defense's Health Professions Scholarship Program (HPSP)... According to the Center for Navy Analysis, it likely would require at least 895 additional HPSP accessions to replace each year's class of 165 USUHS School of Medicine graduates. In a time of widely-held fears of a looming shortage of physicians and health care providers, this retention powerhouse is an increasingly valuable resource for the Military Health System and the nation... The AMA strongly supports the Uniformed Services University of the Health Sciences. Its mission and goals are important to national interests and should continue***.

Military Professional Associations Re-Confirm USU's Relevance to National Security. **Thomas P. Cadmus, National Commander, The American Legion,** documented the American Legion's on-going commitment to the relevance of USU, on April 8, 2005, in a letter to the Secretary of Defense: ***The American Legion urges the Department of Defense to retain and expand the Uniformed Services University of the Health Sciences (USUHS) as a reliable and valuable source of uniformed physicians, advanced practice nurses and scientists dedicated to careers of service in the Army, Navy, Air Force and the United States Public Health Service... The Congress has strongly endorsed the continuation of the USUHS annually through legislative directive since 1993, and the Department of Defense, of course, officially recognized the value and cost effectiveness of the University with the presentation of the Joint Meritorious Unit Award in 2000*** *(the USU Cost Avoidance Fact Sheet documented that USU generated $33.6 million of cost avoidance for DoD in 2004).* ***The American Legion, in its adopted mandates, traditionally does not take positions with regard to specific bases and installations. However, USUHS, in our view, is uniquely critical to long-term military medical readiness and a true national asset***.

The **Military Coalition also sent a re-affirmation of its total support for USU, through a letter signed and endorsed by 35 independent military associations,** to the Under Secretary of Personnel and Readiness on April 13, 2005: ***The Military Coalition has committed its support for the Uniformed Services University of the Health Sciences (USUHS)... As our Armed Forces continue to be deployed***

into combat zones, USUHS graduates ensure that these superb uniformed personnel are provided with quality care from the initial preventive measures taken to protect their health, to the moment of injury, through their release from hospitalized treatment... The MHS could not easily identify or hire civilian physicians who would accept the critical risks associated with combat care.

And, **the National Military Veterans Alliance (NMVA), a coalition of 29 uniformed associations,** also re-confirmed its confidence in USU, in letters to Members of Congress dated March 28, 2005: ***The NMVA would sincerely appreciate your continued attention and on-going support for our Nation's ONLY Federal university dedicated to medical readiness and the provision of continuity and leadership for the Military Health System (MHS)... The MHS requires a steady source of highly competent, uniquely trained, deployable military physicians and advanced practice nurses... Congress created USUHS and the Armed Forces Health Professions Scholarship Program (HPSP) to cost-effectively meet this requirement in the absence of a physician draft... USUHS successfully provides a corps of career-oriented uniformed medical officers..*** (and) ***has proven to be an essential component of medical readiness for the MHS***.

The USU Faculty Represent A National Treasure. USU has a tremendously well qualified and committed faculty. As validated above, the 329 full time faculty members at USU (208 civilians/121 uniformed officers) are recognized across the spectrum of national academic accrediting and professional organizations and the Office of the Secretary of Defense for their academic credentials and military unique expertise and leadership. In 2004, seventy-five USU faculty were the recipients of over $28 million in investigator-initiated, peer-reviewed funding; USU faculty publish extensively in high impact peer-reviewed journals and are leading participants in a regional consortium of institutions funded by the National Institute of Allergy and Infectious Diseases to develop a Center of Excellence for Biodefense and Emerging Infectious Diseases. In recognition of its faculty, USU has been designated by the American Type Culture Collection as the reference center for toxins recognized as select agents in bioterrorism; and, a USU Professor and Department Chair leads one of ten state-of-the-art national proteomic centers funded by the National Heart Lung and Blood Institute.

USU faculty are selected to serve on editorial boards for the leading journals in the health sciences, such as Obstetrics and Gynecology, the American Journal of Cardiology, and the Journal of the American College of Cardiology - the premier journals of these specialties. USU faculty are continuously selected for distinguished awards in a wide variety of professional organizations, such as the American College of Physicians' Herbert S. Waxman Award for 2004 and the Commissioned Officers Association of the United States Public Health Service's 2004 Health Leader of the Year. A USU Professor of Psychiatry was elected to serve as Chair of the Accreditation Council for Graduate Medical Education (ACGME) for a two-year period, effective October 1, 2004; and, he continues to serve on the American Medical Association (AMA) Council on Medical Education and on the AMA/American Board of Medical Specialties (ABMS) Liaison Committee on Specialty Boards, as the Immediate Past Chair for both organizations. Another USU Professor and Department Chair became the first uniformed member appointed to the Accreditation Council for the Graduate Medical Education (ACGME) Residency Review Committee for Obstetrics and Gynecology (*a twelve-member group responsible for accreditation decisions for all Obstetrics and Gynecology Residency Programs in the United States*). And, a USU Professor of Medicine was selected to serve as President of the Alliance for Clinical Education (*a multidisciplinary group formed in 1992, to foster collaboration across specialties to promote excellence in the clinical education of medical students*).

During 2004, a USU Professor of Pathology was featured in the national media for conducting genome-based, high throughput technologies of the radiation resistant bacterium *Deinococcus* radiodurans; he published an experimental paper in Science magazine, in November of 2004, showing that intracellular manganese accumulation facilitates radiation resistance. The paper was reported in newspapers and will be featured in a *National Geographic* special, during 2005. A summary of his work was also published by Nature; his on-going grants total over $1.3 million. Another USU researcher was recognized in the Proceedings of the National Academy of Sciences for his leadership of one of two groups to independently publish the identity of the human protein that facilitates infection by the Nipah and Hendra viruses. These two emerging infectious animal diseases are transmissible to humans and are considered as possible bioterror agents. Knowing both the viral and cell proteins involved in fusion will allow scientists to develop vaccines and treatments for these two important emerging infectious diseases; his research is funded by the National Institute of Allergy and Infectious Diseases (NIAID).

The Future. The recognition and validation of USU, as cited above, did not occur by chance. Fourteen accrediting entities evaluate USU programs and activities and have consistently conferred accreditation with commendation. The USU faculty is nationally recognized for its academic accomplishments and contributions and can take much credit for the evolution of the University into a national treasure that is acknowledged for its military unique expertise, scientific contributions, and academically-sound military-unique educational programs. Due to their dedication and superb performance, USU alumni are cost-effectively holding over 33 percent of the leadership positions in their respective Services and are assuming Command positions across the MHS. The contributions of the USU faculty, staff, and alumni are documented and validated throughout the ***2004/5 Edition of the USU Journal***. As revealed during the recent BRAC process and expressed above by its major stakeholders, the University has exceeded its mission and decidedly proven its relevance to the Military Health System.

On July 1, 2005, following an extensive national search, **Charles L. Rice, M.D., former Vice Chancellor at the University of Illinois, at Chicago,** stepped into the leadership position at the University. As our fifth University President, Dr. Rice joins the USU Family with exactly the credentials and expertise required to lead USU during the next phase of its evolvement. A retired Navy Reserve Officer and nationally recognized and accomplished academic leader, Dr. Rice will ensure that USU continues to earn the accolades cited above; he is precisely the leader needed during the challenging, yet exciting times, that lie ahead for the University. He is much welcomed by the USU Community.

(*The 2004/5 Edition of the USU Journal replaces the 2003/4 Edition as the source document for the University's responses to congressional, executive, and general requests for information.*)

Mary A. Dix
Vice President for Administration
and Management and
Editor-in-Chief
USU Journal - 2004/5 Edition

Field Medicine

"Learning to care for those in harm's way"

RELEVANCE - READINESS - OPTIMIZATION

The American Legion urges the Department of Defense to retain and expand the Uniformed Services University of the Health Sciences (USUHS) as a reliable and valuable source of uniformed physicians, advanced practice nurses and scientists dedicated to careers of service in the Army, Navy, Air Force and the United States Public Health Service.

The Congress has strongly endorsed the continuation of the USUHS annually through legislative directive since 1993, and the Department of Defense, of course, officially recognized the value and cost effectiveness of the University with the presentation of the Joint Meritorious Unit Award in 2000... the Uniformed Services University of the Health Sciences, in our view, is uniquely critical to long-term military medical readiness and a true national asset.

It is in this spirit that The American Legion urges the retention and continued support of the Uniformed Services University of the Health Sciences.

- **Thomas P. Cadmus, National Commander, The American Legion,** Letter to the Deputy Secretary of Defense, April 8, 2005.

UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES JOURNAL

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I. RELEVANCE

When asked how my career has been influenced by my medical school education at USUHS, I can summarize the discussion to a simple phrase: I became a military physician, not merely a physician in the military. USUHS was the catalyst from which my entire career has evolved. Today, more than ever, this catalyst is necessary if we are to train and retain military physicians who place enormous value on the unique art and science of a military medical profession. We must have a cadre of military medical officers who practice the art and science of military medicine with an understanding of the past, where we have come from, applying new capabilities and skills within the context of military operations and be able to envision and work toward a more capable, flexible and agile military medical system in the future.

- **Brigadier General C. William Fox, Jr., MC, USA, USU SOM Class of 1981, Commanding General, Brooke Army Medical Center and Great Plains Regional Medical Command,** Fort Sam Houston, Texas, Correspondence with USU, April 13, 2005.

I write to express the Association's strong support for the unique role and mission of the Uniformed Services University of the Health Sciences... this institution's alumni provide the backbone of the senior leadership of the three service's medical departments.

Faculty at USUHS are widely recognized among those of peer institutions for the excellence of the medical education program and are frequent invited speakers at our annual meetings on this important topic. Moreover, USUHS with its Center for Patient Safety can and will serve as a laboratory for this critical need for our entire profession. Other programs at USUHS in nuclear and biological warfare defense and operational medicine simply do not exist at any of the nation's civilian medical schools.

At no other institution are medical students taught about the medical response to weapons of mass destruction. Only a handful of other medical schools offer courses in tropical medicine... USUHS graduates have demonstrated a commitment to serving their country in numbers and to a degree that is unrealistic to expect from civilian physicians. At a time when this nation's military operations are diverse and changing, we need a corps of dedicated individuals who are trained and willing to respond to these challenges.

- **Jordan J. Cohen, M.D., President, Association of American Medical Colleges,** Letter to the Deputy Secretary of Defense, April 27, 2005.

I write to express in the strongest terms my support for the continued development and sustenance of the Uniformed Services University of the Health Sciences. This excellent health sciences university is now well established among the most highly respected of American health professional schools. I speak not only for myself but for the Association of Academic Health Centers and for the leaders of our member academic health science centers. USUHS and its leaders have worked with others in the Association of Academic Health Centers to advance the development of organized distance learning techniques in health professional education, in bioterrorism defense, in the strategizing about global health and domestically about the systemic delivery of population-based health care and preventive services, in all of which areas USUHS is in a leadership position... the military experiences in Afghanistan and Iraq have amply demonstrated why the military needs the specially trained personnel supplied by USUHS to go into the field to deliver the most extraordinary care possible there, while also providing the specialty back-up in our major military hospitals to follow up once the wounded are transported for definitive care... We know of the extraordinary high percent of graduates of the medical school who stay the course to retirement in the military and to my mind these data make the economic argument for supporting USUHS very strong indeed.

- **Roger J. Bulger, M.D., President and CEO, Association of Academic Health Centers,** Letter to the Deputy Secretary of Defense, April 28, 2005.

On behalf of the American Medical Association (AMA), I write to express our strong support for the Uniformed Services University of the Health Sciences (USUHS)... The AMA vigorously supports the continuance of USUHS because we believe it is vital to the continued strength, morale, and operational readiness of the military services... Training men and women to assume careers as medical officers in the military and the United States Public Health Service is an important mission that must continue. Many USUHS graduates are uniquely qualified to meet the health needs of our armed forces in foreign theaters and combat situations, both of which may present injuries and illnesses that domestic civilian physicians do not often encounter. USUHS graduates are trained in the medical response to chemical, biological, radiological, nuclear, and explosive/weapons of mass destruction (CBRNE/WMD) related incidents, filling a need we wish did not exist but must address responsibly... Moreover, those in the Public Health Service, including USUHS graduates, play an important role in our nation's health. Of note, *U.S. News and World Report* has ranked USUHS Graduate Programs

in Public Health, which focus on community health, sixth in the nation for the last two years... The AMA strongly supports the Uniformed Services University of the Health Sciences. Its mission and goals are important to national interests and should continue.

- **Michael D. Maves, M.D., MBA, Executive Vice President, CEO, the American Medical Association,** Letter to the Deputy Secretary of Defense, May 6, 2005.

The Middle States Association/Commission on Higher Education visiting team applauds the dedication of all associated with the Uniformed Services University of the Health Sciences. From the students, staff, administrators, president through the Board of Regents, the Nursing Chiefs and others we met during the visit, each exhibited a sincere commitment to the mission of the University. Theirs is a unique mission. The Team realized the impact of the fulfillment of the mission while touring Bethesda Naval Hospital where military injured in the war with Iraq were obtaining treatment. The Team leaves confident knowing that by USU fulfilling its mission, the U.S. military will receive the best of health care while in harms's way and during peacetime... We leave the University with a sincere belief that the health care of the military services, and the burgeoning research in areas critical to the world in which we live, are in the excellent care of USU practitioners and faculty. We believe that they serve this country well... We truly leave with a sense of pride and gratitude for providing this service to the University.

- **Evaluation Team Representing the Middle States Association,** *Summary and Conclusion*, Report to the Faculty, Administration, Trustees,Students of USUHS, USU Received the Maximum Accreditation of Ten Years with Commendation (2003-2013), April 2, 2003, pages 22-23.

OPERATION BUSHMASTER

I. THE UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES (USU)

Learning to Care for Those in Harm's Way

A recognized vital and integrated component of the Military Health System (MHS), USU continues to provide essential support to *Force Health Protection* through its unique training centered in preventive medicine and combat-related health care. In accordance with strategic guidance, the University continues to successfully focus on: RELEVANCE - the critical, or core relevance, of its essential mission to provide continuity, leadership, and responsiveness to the special needs of the MHS; READINESS - the provision of uniformed physicians, advanced practice nurses, and graduate degree recipients who are uniquely qualified to practice and address combat casualty care, tropical medicine, combat stress, disaster medicine, and the medical response to unconventional, disaster, or operational contingencies; and, OPTIMIZATION - the cost-effective management of its resources to ensure the generation of annual cost avoidance for the MHS through its multiple, fully accredited programs (estimated cost avoidance during 2004 was $33.6 million).

ESTABLISHMENT, DEVELOPMENT, AND GOVERNANCE

The Uniformed Services Health Professions Revitalization Act of 1972 Establishes the University. Public Law 92-426, *the Uniformed Services Health Professions Revitalization Act of 1972*, established the University as a separate agency within the Department of Defense (DoD). Planning for the development of USU began, in 1974, when the **President of the United States, Richard M. Nixon,** appointed a Board of Regents and the University's first President, **Anthony R. Curreri, M.D.** Initial efforts were focused on establishing the USU School of Medicine (SOM) as the University's first academic program. (A copy of Public Law 92-426 is at Appendix A.)

When establishing the Uniformed Services University of the Health Sciences (USUHS) in 1972, Congress and DOD envisioned it as a critical accession source for highly qualified, career physicians essential for the success of the all-volunteer military. Subsequent achievements of USUHS graduates, their high rates of retention, and their rise in disproportionate numbers in leadership positions attest to USUHS's success.

When USUHS was formed, there was no unifying intellectual concept of "military medicine" or how the DoD might operationalize tri-Service medical support. There were groups of uniformed physicians separately devoted to Ground Combat, Aerospace, and Undersea Medicine. USUHS changed that by developing integrated, academically rigorous curricula for military medicine. One component, the Combat Casualty Care Course (C4) has been presented to over 50,000 Military Health System and other professionals... New (USUHS) **centers of excellence are poised for dramatic contributions to force health protection and deployment health. Goals are: delivering new science and capabilities for combating world-wide emerging infectious diseases, advanced combat casualty care, WMD first-response**

training, protection against radiation injuries, and on-line, interactive training for Active, Reserve, and Guard components and the nation's core of civilian first responders.

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense, Health Affairs,** *Briefing on USUHS before the Leadership of the Office of the Secretary of Defense*, April 18, 2005, pages 1 and 3.

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Collaborative Efforts by the Joint Services and Civilian Medical Communities in the Development of the University. The initial development of objectives for the USU SOM was accomplished through the combined efforts of the USU Board of Regents; the Board of Regents' Educational Affairs Committee; **USU President, Anthony R. Curreri, M.D.**; the first **Dean of the USU SOM, Jay P. Sanford, M.D.**; and, special working groups. Activities used to develop these objectives included committee meetings, retreats, and consultation with a variety of experts from military medicine and civilian medical organizations and institutions. Individuals and groups consulted included: **the Surgeons General** of the Army, Navy, and Air Force; **Chiefs of the Medical Departments/Services** of the Army, Navy, and Air Force; **physicians from** the Walter Reed Army Medical Center, the National Naval Medical Center at Bethesda, the Malcolm Grow United States Air Force Medical Center at Andrews Air Force Base, the Wilford Hall United States Air Force Medical Center, the United States Army Academy of Health Sciences, the Sheppard Air Force Base Academy of Health Sciences, the Brooke Army Medical Center, and the Armed Forces Institute of Pathology; **the Service Secretaries** from both the Air Force and the Navy; the Association of American Medical Colleges **(AAMC)**; the American Medical Association **(AMA)**; the Liaison Committee on Medical Education **(LCME)**; the Department of Health, Education, and Welfare **(HEW)**; the National Institutes of Health **(NIH)**; and, the following **Universities**: George Washington University; Georgetown University; and, Howard University. The fine tradition of the University's identifying and responding to the special needs of the Uniformed Services has been an on-going process since 1974.

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DoD Directive 5105.45. Significant changes in the USU governance structure resulted from actions taken, during 1991. On April 15, 1991, the Secretary of Defense revised the DoD Directive for Health Affairs, 5136.1, to delegate responsibility for the University from his office to the Assistant Secretary of Defense for Health Affairs (ASD/HA). The authority to appoint the President of the University was retained by the Secretary of Defense. On April 19, 1991, the DoD Directive for USU, 5105.45, was updated to reflect those changes and to define in detail the mission, organization, responsibilities, functions, relationships, authorities, and governance of the University. In a memorandum dated May 3, 1991, the ASD/HA re-delegated the authority for the day-to-day management of the University to the USU President; the current delegation of authority to the USU President for the on-going management of the University is also included in DoD Directive 5105.45. (A copy of the most current revision of DoD Directive 5105.45, dated March 9, 2000, is at Appendix A.)

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Board of Regents' Charter. Prior to 1991, the USU Board of Regents (BOR) had been an independent policy-making body; it is now an advisory committee to the Secretary of Defense. A Charter for the BOR was approved by the Office of the Secretary of Defense (OSD) on April 1, 1991; the most current edition of the BOR Charter is dated April 4, 2003. The Charter defines the objectives and scope of the BOR to: 1) provide advice and guidance to the Secretary of Defense through the ASD/HA for the operation of USU; and, 2) assure that the University operates in the best tradition of academia and is in compliance with the appropriate authorities on accreditation. The USU administration and faculty provided substantial input into the revision of both the USU DoD Directive and the BOR Charter. As a result, the administrative/governance documents, of 1991, reflect the coordinated efforts of the ASD/HA, the BOR, the USU administration and activity heads, SOM department chairs, the SOM Faculty Senate, and the Dean's Executive Advisory Committee. In addition, during this process, the Acting Dean of the SOM coordinated with, and briefed, the LCME and the Commission on Higher Education of the Middle States Association of Colleges and Schools to ensure compliance with the University's accrediting entities on issues regarding governance and administration. To codify the Board's activities, BOR Bylaws were written, during 2000, under the leadership of **Lonnie R. Bristow, M.D., Chair, USU Board of Regents**. On February 6, 2001, the BOR Bylaws were approved. (Copies of the most current BOR Charter and Bylaws are at Appendix A.)

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USU and the 1998 Defense Reform Initiative. In November of 1997, the **Honorable William Cohen, Secretary of Defense,** substantiated his support of the University by including USU as part of his Fiscal Year 1998 Defense Reform Initiative (DRI). Program Budget Decision (PBD) 711 issued on December 17, 1997, outlined the DRI and moved USU from under the direct oversight of the Office of Health Affairs, Office of the Secretary of Defense (OSD), to the collective oversight of the Surgeons General of the Army, Navy and Air Force. The PBD ensured manpower and funding for USU and established the Surgeon General of the Navy as the Executive Agent for program, budget, and funding execution responsibilities. ***The PBD also directed that the University's funding would continue to be programmed, budgeted, and executed within the Defense Health Program.***

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The Establishment of the USU Executive Committee. The administrative process for fiscal matters was defined, during 1998, by the ASD/HA, in consultation with the USU BOR, the USU administration, and the Surgeons General. As a result, DoD Directive 5105.45 was updated, on May 17, 1999, to include the formal establishment of the USU Executive Committee to provide management oversight for the University; the Executive Committee is composed of the three military Surgeons General. ***The current membership of the USU Executive Committee includes: Lieutenant General Kevin C. Kiley, Surgeon General of the Army****; Vice Admiral Donald C. Arthur, Surgeon General of the Navy; and,* ***Lieutenant General George P. Taylor, Jr., Surgeon General of the Air Force***. As outlined in DoD Directive 5105.45, the USU President reports through the Executive Committee to the ASD/HA. The Executive Committee is presently chaired by **Lieutenant General George P. Taylor, Jr.** (a copy of the current Charter for the USU Executive Committee, dated December 18, 2000, is at Appendix A).

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Responsibilities of the Navy as the Executive Agent for USU. As the Executive Agent, the Navy Surgeon General's Office provides oversight for the University's budgeting and programming activities. The DoD Directive 5105.45 further clarifies that the USU funding and personnel requirements will not be offset against the Navy Surgeon General's budget or work-year allocations; thus, USU funding remains within the Defense Health Program.

> **As the Executive Agent for the Uniformed Services University of the Health Sciences (USUHS) and a member of the Board of Regents, I am pleased to announce that the University recently received a ten-year accreditation with commendation from the Middle States Commission on Higher Education. This is a noteworthy accomplishment and it reflects well on the successful, on-going commitment of the University to provide the highest levels of professional health care education for our Nation's Military Health System (MHS).**
>
> **The quality of the USUHS alumni ensures that the intent of the establishing legislation, The Uniformed Services Health Professions Revitalization Act of 1972, is being realized. The military unique curricula and programs of USUHS, successfully grounded in a multi-Service environment, draw upon lessons learned during past and present day combat and casualty care. USUHS alumni, 3421 physicians, 200 advanced-practice nurses and 798 scientists, have become an invaluable and cost-effective source of career-oriented, dedicated uniformed officers. Our University graduates volunteer in large numbers for deployment or humanitarian missions; they serve proficiently in desert tents, aboard The Hospital Ship COMFORT, and during air evacuations. USUHS graduates embody the University's mission-driven goal of *Learning to Care for Those in Harm's Way*; they are equal to their sacred mission of providing care to our Nation's most precious resource - the men and women who serve in the Armed Forces... the University has become the Academic Center for the Military Health System...** (and) **has achieved peer recognition, on-going accreditation with commendation from 14 accrediting entities, and the Joint Meritorious Unit award from the Secretary of Defense.**
>
> - **Vice Admiral Michael L. Cowan, Surgeon General of the Navy,** Testimony before the Senate Appropriations Committee, Subcommittee on Defense Health, April 28, 2004.

USU Employees Become Navy Employees. Section 7.2.1 of Directive 5105.45 also directs that USU civilian personnel authorizations will be under the purview of the DoD Executive Agent (Navy) and that USU civilian employees should be moved from OSD and carried on the rolls of the Department of the Navy. The USU civilian employees officially converted from OSD to Navy employees with the changing of the University's Subelement and Unit Identification Code at the end of Fiscal Year 1999. All official reporting documents reflect this change.

An inclusive review of the USU personnel instructions to assure compliance with the Navy personnel instructions was completed by the USU Civilian Human Resources Directorate, during 2000; and, a Navy-conducted review and evaluation of the USU Civilian Human Resources Directorate was conducted on January 14-15, 2002. The Navy review team found that *the USU Civilian Human Resources Directorate was in compliance with the self-assessment requirements of SECNAV Instruction 12273.1, dated March 16, 1999, with no corrective actions required*.

Following the implementation of the Modern Defense Civilian Personnel Data System (MDCPDS), during August of 2001, both the USU government service/wage grade (GS/WG) and the USU administratively determined (AD) employees had to be manually reported as Navy civilian employees pending the revision of computer software, which occurred, during 2002. It was agreed that the Human Resource Services Center (HRSC) of Washington Headquarters Services (WHS) would continue to service the University for its personnel requirements, through 2002. By March of 2003, upon the completion of all software and coordination requirements, all USU personnel services had been placed under the purview of the Navy; and, by mid-2003, the USU payroll services had also been placed under the Navy payroll office. Currently, the University receives personnel services from the Navy's Northwest Region HRSC, located in Silverdale, Washington.

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A Strengthened Relationship Between USU and OSD.

Today, the value of USUHS to DOD and to the Nation far exceeds its original mandate to "graduate career military medical officers in an all-volunteer environment." It is a nationally-respected academic institution operating as part of the DOD culture, and is central to discovering and solving a broad range of public health and medical issues directly affecting medical and force readiness...

***Conclusion*: USUHS mission, location, assets and faculty are vital to the Military Health System's mission. It directly affects our ability to train and retain a core cadre of career military health and operational medical leaders.**

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense, Health Affairs,** *Briefing on USUHS before the Leadership of the Office of the Secretary of Defense*, April 18, 2005, pages 1 and 3.

The evolving relationship between the USU and OSD, from 1991 through 2004, has proven beneficial to the University and the MHS and has clarified and strengthened the position of the University, within the entire DoD structure. One example of the successful relationship between USU and OSD was evidenced by the presentation of the *Joint Meritorious Unit Award* by the **Honorable William S. Cohen, Secretary of Defense,** to the University, on December 11, 2000. In addition, on March 22, 2001, the **Honorable Donald Rumsfeld, the current Secretary of Defense**, also confirmed his on-going support for the critical mission of the University, when he wrote to the Chairman of the USU Board of Regents and stated that: ***The Department takes great pride in the fact that the USUHS graduates have become the backbone for our Military Health System. The training they receive in combat and peacetime medicine is essential to providing superior force health protection... All of us in the Office of the Secretary of Defense place great emphasis on the retention of quality physicians in the military. The USUHS ensures those goals are met.*** On August 2, 2004, the Secretary of Defense awarded the prestigious ***DoD Medal for Distinguished Civilian Service*** to the **USUHS President, James A. Zimble, M.D.,** upon his retirement; in the citation, **Secretary Rumsfeld** stated: ***The Department can now boast of USUHS as the Academic Health Center for the Military Health System; an asset that continues to garner global recognition for***

its military unique medical readiness training and its positive contributions to the security of our Nation in the critical areas of National Medical Preparedness and Public Health.

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USU BOARD OF REGENTS.

Modern military operations require physicians and surgeons to be deployed forward on the battlefield in order to return combat soldiers to duty as quickly as possible and minimize the loss of life and limb among the seriously wounded. This new kind of battlefield requires a new type of medical officer - a professional military medical officer who is trained to be an integral part of the forward combat team as it maneuvers over large distances to engage the enemy. USUHS is the only institution in the Nation that produces professional military medical officers who are specifically trained to care for our men and women in uniform during combat operations.

- **The Honorable Lawrence C. Mohr, M.D., F.A.C.P., F.C.C.P., Member of the USU Board of Regents, Former White House Physician to the President,** Letter to USU, April 12, 2005.

Membership of the Board of Regents. The USU Board of Regents (BOR) is an advisory committee governed by the Federal Advisory Committee Act (Public Law 92-463, Section 1), the General Services Administration Final Rule (41 C.F.R. Part 101-6), and Department of Defense Directive 5105.45. The nine members of the Board are distinguished academics, educators, health care providers and public servants; they are Presidential appointees confirmed by the United States Senate. As of April 2005, the USU BOR includes the following individuals: **Everett Alvarez, Jr., J.D., Chair**; **Linda J. Stierle, MSN, RN, CNAA, Vice Chair**; **Otis W. Brawley, M.D.**; **L.D. Britt, M.D.**; **William C. De La Peña, M.D.**; **Sharon A. Falkenheimer, M.D.**; **Ikram U. Khan, M.D.**; **Vinicio E. Madrigal, M.D.**; and, **Lawrence C. Mohr, Jr., M.D.**

Ex Officio Members of the Board. In addition to the nine White House appointed members, the Board also has six *ex officio* members. These include: 1) **William Winkenwerder, Jr., M.D., M.B.A.**, Assistant Secretary of Defense for Health Affairs; 2) **Vice Admiral Richard H. Carmona, M.D.,** United States Public Health Service, The Surgeon General of the United States; 3) **Lieutenant General Kevin C. Kiley**, Surgeon General, United States Army; 4) **Vice Admiral Donald C. Arthur**, Surgeon General, United States Navy; 5) **Lieutenant General George P. Taylor, Jr.**, Surgeon General, United States Air Force; and, 6) **Larry W. Laughlin, M.D., Ph.D., Interim President, USU** (*serving as Interim President from August 2004 through June 2005*); the USU President serves as a non-voting member.

Advisors to the Board. **General Thomas R. Morgan, USMC (Retired)**, the former Assistant Commandant of the Marine Corps, serves as the Military Advisor to the Board. There are eight additional advisors to the Board: 1) the Dean, School of Medicine; 2) the Dean, Graduate School of Nursing; 3) the Commander, Wilford Hall Medical Center; 4) the Commanding General, North Atlantic Regional Medical Command and Walter Reed Army Medical Center; 5) the Commander, National Naval Medical Center; 6) the Commander, Malcolm Grow Air Force Medical Center; 7) the Commander, Walter Reed Army Health Care System; and, 8) the Commander, Defense Medical Readiness Training Institute, in San Antonio, Texas.

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The Board's Significant Role in Academic Affairs. The BOR has continuously played a prominent role in academic affairs at the University. Faculty appointments, promotions and organization, awarding of degrees, curriculum design and implementation, academic requirements for admission and graduation, and related matters vital to the academic well-being of the University are all included in the definition of *academic affairs* as provided by DoD Directive 5105.45. The Directive clarifies it is DoD policy that **...consistent with the performance of the DoD mission and with established practices covering academic independence and integrity in the fields of medical and health sciences education, the Department of Defense recognizes the unique role of the USUHS Board of Regents in advising the Secretary of Defense. The Assistant Secretary of Defense for Health Affairs, the USUHS Executive Committee, and the President of the USUHS will be guided by the advice of the USUHS Board of Regents on academic affairs.**

The Board of Regents, at the direction of the Assistant Secretary of Defense for Health Affairs, is responsible for identifying and recommending a slate of candidates for the position of President, USU, to the Secretary of Defense.

University Presidents:

Anthony R. Curreri, M.D., was appointed by **President Nixon,** in 1974, and retired in 1976;

The Honorable David Packard, Acting President, served from November of 1976 through May 29, 1981;

Jay P. Sanford, M.D., served, as President, from May 30, 1981, through November 17, 1990;

James A. Zimble, M.D., served from July 15, 1991, to August 2, 2004;

Larry W. Laughlin, M.D., Ph.D., Interim President, served from August 3, 2004 through June 30, 2005; and,

Charles L. Rice, M.D., has served as President since July 1, 2005, to the present.

The BOR also reviews the final selections for the Deans of the School of Medicine and the Graduate School of Nursing prior to their Selection by the USU President.

School of Medicine Deans:

Jay P. Sanford, M.D., was appointed as the first Dean, in May of 1975, and served through November 17, 1990;

Harry C. Holloway, M.D., served as the **Deputy Dean** from July 9, 1990 through June of 1992;

Nancy E. Gary, M.D., was appointed as Dean on June 28, 1992, and served through June of 1995;

Val G. Hemming, M.D., served as Interim Dean from July 2, 1995 through May 2, 1996; following a national search, he then served as Dean from May 3, 1996 through May 19, 2002; and,

Larry W. Laughlin, M.D., Ph.D., was appointed as Dean on May 20, 2002, and continues to serve in that position.

Graduate School of Nursing Deans:

Faye G. Abdellah, Ed.D., Sc.D., RN, served as Acting Dean throughout the establishment of the GSN, which began in 1993; following a national search, she was selected as Founding Dean and served from May 17, 1996 through May 31, 2002; and,

Patricia A. Hinton Walker, Ph.D., RN, FAAN, was appointed as Dean on June 1, 2002, and continues to serve in that position.

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The Board's Mission and Responsibilities. The Board's principal mission is serve as the primary advisor to the Secretary of Defense, the Assistant Secretary of Defense for Health Affairs, and the University President concerning academic affairs at USU. The Regents approve academic titles for military and civilian faculty members. Additionally, upon the recommendation of the University's faculty and Deans, the Regents approve the granting of appropriate academic degrees to successful candidates. The BOR recommends the establishment of postdoctoral and postgraduate programs, technological institutes, and programs in continuing medical education for military members of the health professions. The Regents may also recommend reciprocal education and research programs with foreign military medical schools. Additionally, the BOR is significantly involved with the University's strategic planning process. On April 4, 1999, the BOR's Charter, which outlines the mission, membership, duties and responsibilities of the BOR, was revised and approved by the Office of the Secretary of Defense (OSD); the most current edition of the BOR's Charter is dated April 4, 2003. In addition, the Bylaws of the Board of Regents were updated and approved on February 6, 2001. (Copies of the BOR Charter and Bylaws are at Appendix A.)

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The Board's Eighth Annual Report to the Secretary of Defense.

***Successful Implementation of Simulation Technology Training with Distance Capabilities*. The National Capital Area Medical Simulation Center (SIMCEN) is a world-class, cutting-edge medical education facility, and serves as a template for more than 35 educational institutions currently attempting to employ similar simulation technology into their own medical education programs; the SIMCEN has been featured in a Discovery Channel Series and by major newspapers and professional journals. Today, this teaching facility is unique among the Nation's limited simulation centers because five state-of-the-art teaching components are included under one roof: standardized patients; multi-media, interactive, clinical case presentations on LAN or web-based CD-ROMs; virtual reality software applications; computerized mannequin simulators; and, video-teleconferencing and distance education capabilities. The SIMCEN uses technology and actors posing as patients to provide students and residents instruction on readiness skills and focused pre-deployment training for wartime, peacekeeping, and humanitarian missions. Through over 10,000 encounters, students and residents have gained experience in developing decision-making skills, familiarizing themselves with instruments and equipment and refining techniques and procedures.**

- **The Honorable Donald Rumsfeld, Secretary of Defense,** *Narrative to Accompany the Award of the DoD Medal for Distinguished Civilian Service*, Presented to the USU President on August 2, 2004.

Since 1997, the USU Board of Regents has submitted an annual report to the Secretary of Defense. This report partially fulfills the Board's obligation to advise the Secretary on the University's operation and often focuses on contributions that USU makes to the Department of Defense. ***The 2004 Annual Report details the efforts of the USU National Capital Area Medical Simulation Center*** to address needs for realistic medical training and applied research as well as to pioneer new simulation technologies. ***For example, as a result of the Center's capabilities, USU was the first institution in the world to be approved by the American College of Surgeons to conduct Advanced Trauma Life Support Certification of surgical skills on medical simulators, rather than on animals or cadavers.*** The Center continues to play a major role in preparing military medical personnel to provide the best combat care ever, setting new standards for the survival of the wounded arriving at military medical treatment facilities. (*Detailed information on the USU National Capital Area Medical Simulation Center follows in this section of the Journal.*)

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STRATEGIC PLANNING

A Perpetual Work-In-Progress. The USU Strategic Plan has been continuously evolving to reflect the changing requirements of the Strategic Plan of the Military Health System (MHS), which, in turn, is also linked with the Strategic Plans of the University's primary customers, the Surgeons General of the Army, Navy, and Air Force.

All Proposals for Funding Must Tie Into the USU Strategic Plan. Beginning with the USU Strategic Planning Process, initiated during 1991, an increasingly systematic approach has been developed for setting the University's priorities and allocating resources based upon relevance to the USU Strategic Plan. ***USU activity leaders must show a direct relationship with the current USU Strategic Plan when submitting their written requests for future budgets***. Thus, a formal process has evolved for identifying program needs and for the submission of budget requests. Involvement of USU administration, faculty, and staff at both the formal and informal levels of the decision-making process assists in the equitable and ***mission-focused allocation of resources*** throughout the University's wide range of activities. The USU Strategic Plan is also used to develop the University's annual Program Objective Memorandum (POM) submission. The POM request, covering a five to six-year timeframe, is submitted to the Department of Defense, through the Office of the Navy Surgeon General, in order to gain the necessary funds for the USU budget as part of the Defense Health Program.

Strategic Planning Initiatives from 1998 through 2004. During 1998, the University updated the basic objectives under each of the goals of its Strategic Plan. Then, during 1999 through 2000, metrics or performance measurements were established and monitored for each objective. Next, to ensure that the USU Strategic Plan was accurately reflecting the evolving requirements of the MHS, on April 25-27, 2001, the senior staff of USU, representatives from the teaching hospitals, the Chair of the BOR, and senior staff from the offices of the Surgeons General met to participate in a three-day strategic planning session. The purpose of the retreat was to review and update the goals and objectives of the USU Strategic Plan so that they would appropriately reflect the current requirements of the MHS. Reference materials included the Strategic Plans of Health Affairs in the Office of the Secretary of Defense and the Surgeons General, the USU Strategic Plan, and survey results as they were recorded during the initial group discussions.

Through group interaction, the attendees of the 2001 retreat reviewed USU's internal and external customers and stakeholders. Then, the concerns of those stakeholders were identified, discussed, and weighted during an analysis of the strengths, weaknesses, opportunities, and challenges existing within USU's environment. Following those discussions, *seven strategic issues were identified: marketing; resources; people; USU as a strong advocate for the MHS direct care mission; education/research/partnerships; strategic thinking; and, communication*. Those seven strategic issues were carefully developed into seven strategic goals with forty-one objectives. Next, 22 of the most significant objectives were prioritized for initial implementation and action. At the conclusion of the 2001 strategic planning session, the focus of the University's mission statement was reviewed to identify a shorter, yet accurate reflection of the University's purpose and future focus; the attendees agreed on the following: ***Learning to Care for Those in Harm's Way.***

Goal Champions were appointed to oversee the development and implementation of the actions required to accomplish the objectives and ultimate realization of each of the seven goals. Finally, the attendees designated Team Leaders to develop action plans for accomplishing one, or more, of the prioritized

objectives; and, teams were formed to work on the selected objectives. Throughout 2001 and 2002, the staff, faculty, and students of the University continued their efforts to meet the goals and objectives of the 2001-2002 USU Strategic Plan. Individual progress reports on each of the seven goals were provided to the USU President who forwarded them to the USU Board of Regents. Over 250 members of the USU Community developed and implemented strategies under the seven goals and forty-one objectives as the University continued to focus on its mission statement - ***Learning to Care for Those in Harm's Way***.

In December of 2002, the senior staff of USU, representatives from the Offices of the Surgeons General and the military teaching hospitals, the Chair of the BOR, and the USU Faculty Senate participated in a retreat to revise and update the 2001-2002 Strategic Plan. The group identified current issues facing the Nation and the University's stakeholders and realigned USU's resources and strategic goals and objectives to better meet the evolving requirements of military medicine. Five new goals (***Education***; ***Military Service***; ***Research***; ***Leadership***; and, ***Stewardship***) and 24 objectives were identified. To ensure that relevant objectives were retained from the 2001-2002 Strategic Plan, a working group was selected to integrate significant objectives into the new plan. **James G. Smirniotopoulos, M.D., Professor and Chair, USU SOM Department of Radiology and Radiological Sciences,** volunteered to lead the initiative to formalize the 2003-2004 Strategic Plan; the on-going process includes expanded faculty involvement in the development of the strategies. During May of 2003, the USU Board of Regents (BOR) voted to accept the newly designed USU Strategic Plan. As of May 2004, the following tasks have been accomplished: 1) establishment of a web site for the USU Strategic Plan <*http://www.usuhs.mil/strat/index.html*>; 2) reconciliation of the new USU Strategic Plan with the 2001-2002 Strategic Plan; 3) alignment of the new USU Strategic Plan with the Strategic Plan of Health Affairs in the Office of the Secretary of Defense; 4) finalization of priorities and the wording for the strategic goals; 5) presentation of the current plan to the University and Henry M. Jackson Foundation leadership; 6) selection of goal champions; and, 7) presentation to the USU Administrative Officers and the Faculty Senate. (The current USU Strategic Plan is at Appendix B.)

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Progress Toward Achieving the University's Five Strategic Goals during 2004. *During 2004, the USU community incorporated the five strategic goals and 24 objectives into its on-going efforts to meet its mission and respond to the requirements of the MHS. The following are just a few selected examples of programs and accomplishments, which addressed the University's five strategic goals, during 2004.*

GOAL 1: EDUCATION: To meet the Nation's needs as the preferred source for uniformed health care education and training.

OBJECTIVE* - *USU will provide outstanding education to its students, focused on military readiness and homeland defense.

USU Has World-Wide Recognition as the One Place Where Physicians Are Trained to Respond to Weapons of Mass Destruction.

Other programs at USUHS in nuclear and biological warfare defense and operational medicine simply do not exist at any of the nation's civilian medical schools. At no other institution are medical students taught about the medical response to weapons of mass destruction. Only a handful of other medical schools offer courses in tropical medicine... At a time when this nation's military operations are diverse and changing, we need a corps of dedicated individuals who are trained and willing to respond to these challenges.

- **Jordan J. Cohen, M.D., President, Association of American Medical Colleges,** Letter to the Deputy Secretary of Defense, April 27, 2005.

This excellent health sciences university is now well established among the most highly respected of American health professional schools. I speak not only for myself but for the Association of Academic Health Centers and for the leaders of our member academic health science centers. USUHS and its leaders have worked with others in the Association of Academic Health Centers to advance the development of organized distance learning techniques in health professional education, in bioterrorism defense, in the strategizing about global health and domestically about the systemic delivery of population-based health care and preventive services, in all of which areas USUHS is in a leadership position.

- **Roger J. Bulger, President and CEO, Association of Academic Health Centers,** Letter to the Deputy Secretary of Defense, April 28, 2005.

For over 25 years, USU has been at the forefront of weapons of mass destruction (WMD)-related medical education. The University has successfully prepared its uniformed graduates to provide military-unique health care and expertise in austere conditions and to respond to injuries caused by chemical, biological, radiological, nuclear, and explosive (CBRNE) weapons. The USU SOM provides 20 more weeks of education than the typical civilian medical school. Where the average school of medicine (SOM)

in the United States offers 13 hours of preventive medicine training, the USU SOM provides 130 contact hours, providing its graduates with a solid background in tropical medicine and hygiene, parasitology, the use of epidemiologic methods, and preventive medicine. Where the DoD scholarship physicians receive between 50 to 132 hours of medical readiness training, the USU SOM students receive between 784 and 889 hours. A military-unique focus and operational training exercises are interwoven throughout the SOM curriculum; as a result, career-committed USU graduates with their military-unique education and extraordinary retention rates are providing quality care, continuity, and leadership throughout the Uniformed Services. ***The Association of American Medical Colleges Reporter has twice featured USU as the one place where physicians are trained for the medical response to WMD in its December issues of 1998 and 2001***. In addition, during 2004, the Congress of the United States, the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, the American Legion, the Military Coalition, the Military Alliance, and the USU Board of Regents once again validated USU's long-standing expertise in WMD-related training and expertise. (*See MILITARY UNIQUE CURRICULUM in Section II of the Journal for breakout by Academic Year*.)

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OBJECTIVE - USU will coordinate with other agencies to develop and conduct specialized training for health care professionals (to include: 1) disaster and humanitarian relief; 2) weapons of mass destruction (WMD); 3) traumatic and post-traumatic stress; 4) preventive medicine for mission readiness; and, 5) force health protection and healthy lifestyles).

USU Programs Are Collaborating Throughout DoD and Other Federal Agencies in WMD-Related Areas of Expertise.

The Secretary of Defense refers to the USUHS graduates as the "*backbone*" of the Military Health System (MHS) and he has officially recognized that USUHS academic centers and research programs have established international credibility for: military unique medical expertise; communication and assessment of military medical humanitarian assistance training; addressing traumatic stress in uniformed and civilian health care communities; and, developing radiological countermeasures and unique training for the response to radiological emergencies.

- **The Military Coalition (*35 Associations and Organizations*),** Letter to the Under Secretary of Defense for Personnel and Readiness, April 13, 2005.

Quality Assured Training for First Responders. In February of 2005, the USU Centers for Humanitarian and Assistance Medicine (CDHAM) and the Study of Traumatic Stress (CSTS) received $1.5 million from the United States Congress to implement ***a collaborative initiative for the sharing of quality assured training in the medical response to weapons of mass destruction (WMD) with the uniformed and civilian Emergency Responder and Health Care Provider Communities across the Nation, via the Internet***. This collaborative initiative will assist in the preparedness for, and recognition of, a WMD incident; it will be a multi-disciplinary, interactive, quality assured, and tiered program leading to the awarding of continuing medical education (CME) credits, continuing nursing education (CE) units, and

certificates of completion. The program is designed to reach a broad spectrum of uniformed and civilian students within the health care community, Federal health care responders, and others in the medical response community. The four primary disciplines include (but are not limited to) physicians, nurses, administrators (health care executives, emergency managers, city/county managers, etc.), and pre-hospital staff (law enforcement, emergency medical technicians, fire, hazmat, etc.). The program will be open to the public, free of charge, and available for anyone interested in enrolling. *Collaborative relationships have been developed over the past two years and subject matter experts identified with the United States Northern Command (NORTHCOM), the Reserve Components, the Department of Veterans Affairs (VA), the Office of the Secretary of Defense (OSD), the United States Public Health Service (USPHS), the Center for Disease Control and Prevention (CDC), and the Association of Academic Health Centers*. ***The technology is being developed to capture/break out totals for*: *1)*** uniformed or civilian recipients of the training; ***2)*** the primary disciplines of the students; ***3)*** completed training by states and districts; ***4)*** organizations represented; ***5)*** CME/CE credits, units and certificates issued by discipline; and, ***6)*** customer satisfaction information. ***This data will be used to determine the cost avoidance generated for DoD*** and will be made available to organizations, as appropriate. CDHAM expects to launch the program in early 2006. (*See Section II, RESEARCH CENTERS AND PROGRAMS, CDHAM, for further information on this initiative*.)

USU Is Home to Internationally Recognized Trauma Expertise. USU provides the internationally recognized ***Center for the Study of Traumatic Stress (CSTS)***, which ensures the continued provision of critically required medical expertise and consultative support relevant to the traumatic impact of combat, CBRNE-related incidents, crisis management, disaster response, and homeland defense. In collaboration with the Institute of Medicine, by early 2004, ***the CSTS had been instrumental in developing a national strategy for integrating mental health into a public paradigm for terrorism management and response***. CSTS also participated in the NATO-Russian Advanced Scientific Workshop on Planning for Bioterrorism and consulted with the World Health Organization on issues related to bioterrorism and mental health. In 2004, CSTS conducted a workshop on ***War Psychiatry Today: From the Battlefield to the Homefront***; the workshop examined the experience and preparation of military physicians for combat support in the Global War on Terror in Afghanistan and Iraq. The conference was attended by consultants to the Surgeons General, operational experts, and those who had recently returned from deployment, in Iraq and Afghanistan. The resulting recommendations provide a clear road map for psychiatric educators of military and combat psychiatry for medical school and postgraduate training, to include residency, fellowship, and continuing education. CSTS has already begun to implement these recommendations, both at the USU SOM and its residency program, as part of its work with the Services to meet doctrine and continuing education requirements. This workshop reflects ***CSTS's on-going commitment to training future medical officers who will lead the MHS Medical Corps***. Significantly, the CSTS PROCITE database of citations and full text materials on trauma, disaster, terrorism, and combat has over 19,000 references that can be accessed for the most current information and recommendations on these topics; ***this database rivals any trauma specialty knowledge resource in existence***.

The ***CSTS provided Just-in-Time Training to disaster response field workers and teams deploying on a variety of missions including the Center for Disease Control's Morgue Mission in support of body recovery following the Tsunami of December 2004***. A ***Push-Pack*** of educational materials was written and assembled in response to the Tsunami, which *included up-to-date information on the health risks of body recovery, mitigation of psychological stressors for body handlers, grief leadership, and the unique circumstances of missing and unrecovered remains for family and loved ones, to include complicated bereavement*. These definitive information and practical knowledge resources were provided to psychiatrists and mental health workers in Sri Lanka, Norwegian and Scandinavian Government Teams working with families whose relatives were dead or missing, Australian Trauma Teams, and international academicians in

the field of trauma and disaster. The CSTS also launched its ***Courage to Care*** health information campaign for the provision of just-in-time fact sheets relevant to deployed forces, uniformed personnel throughout the MHS, and the general public; the Center has received on-going commendation and appreciation for the fact sheets from the Reserve Components and its national and international collaborators. (*See Section II, RESEARCH CENTERS AND PROGRAMS, CSTS, for further information on this Center*.)

The Armed Forces Radiobiology Research Institute (AFRRI). AFRRI was chartered, in 1961, to conduct relevant applied radiobiological research in support of the military medical mission and to support accidental or premeditated events involving nuclear weapons, nuclear reactors, radiological dispersal devices, and other nuclear/radiological situations; the Institute was placed under USU for management in 1992. ***During 2004, AFRRI fielded medical training and provided rapid response in support of DoD missions and other Federal agencies; the following entities received support during the past year*****:** ***1)*** *the Office of Science and Technology Policy (OSTP);* ***2)*** *the National Naval Medical Center in Bethesda, Maryland;* ***3)*** *the Department of Homeland Security (DHS)/Strategic National Stockpile;* ***4)*** *the Department of Health and Human Services (DHS);* ***5)*** *the Food and Drug Administration (FDA);* ***6)*** *the Defense Threat Reduction Agency (DTRA);* ***7)*** *the Department of Veterans Affairs (VA);* ***8)*** *the National Aeronautics and Space Administration (NASA);* ***9)*** *the National Institutes of Health (NIH);* ***10)*** *the Centers for Disease Control and Prevention (CDC); and,* ***11)*** *the Environmental Protection Agency (EPA).* ***Also during 2004, AFRRI medical professionals and research experts provided the Medical Effects of Ionizing Radiation (MEIR) Course to 683 students*** at stateside and overseas venues. Health care and emergency response professionals who attended the course included 281 Army, 32 Air Force, and 79 Navy personnel, as well as, 291 students who were either Marine Corps, foreign military, Public Health Service, DoD civilian, or Coast Guard personnel. And during 2004, ***AFRRI launched its Radiation Biological Dosimetry Tools for Emergency Responders web page***.

The quality of ***AFRRI's science is globally recognized; for example, the following organizations were assisted by AFRRI's scientific experts during 2004*****:** ***1)*** *the NATO Research Task Group 099 for Radiation Bioeffects and Countermeasures;* ***2)*** *the NATO Research Task Group 006 for Radiation Injury and Medical Countermeasures;* ***3)*** *the National Cancer Institute;* ***4)*** *the National Research Council's Committee on Standards and Policies for Decontaminating Public Facilities Affected by Exposure to Harmful Biological Agents;* ***5)*** *the United Kingdom Ministry of Defense;* ***6)*** *the National Institute for Allergy and Infectious Diseases;* ***7)*** *the NATO Human Factors and Medicine Panel Symposium;* ***8)*** *the International Atomic Energy Agency Working Group;* ***9)*** *the National Council on Radiation Protection and Measurements;* ***10)*** *the United States Northern Command;* ***11)*** *the Japanese Ground Self Defense Force;* ***12)*** *the United States Army Heavy Metals Office, Stevens Institute of Technology; and,* ***13)*** *the Army Center for Health Promotion and Preventive Medicine.* ***Also of note, six Defense Technology Objectives (DTOs) were assigned to AFRRI, during 2004***; they are described under the third goal in this section. (*See Section VII for further information on AFRRI.*)

USU, the Academic Center for Military Medicine, Provides Specialized Training for the Military Health System.

> **The American Medical Association has recognized that USUHS not only educates its own graduates, but also provides a significant national service through its continuing medical education courses for military physicians in combat casualty care, tropical medicine, combat stress, disaster medicine, and medical responses to terrorism, courses not available through civilian medical schools. Significantly, the Emerging Infectious Diseases Graduate Education Program provides courses on the agents and effects of bioterrorism and is the only graduate program in the Nation to offer formal training in these critical areas.** ***Over the past 13 years, USUHS has gained recognition and evolved into the Academic Center for Military Medicine.***
>
> - **The Honorable Daniel K. Inouye, United States Senator,** *Tribute to James A. Zimble, M.D.*, Congressional Record, July 6, 2004, page S7575.

> **Of note,** ***U.S. News and World Report*** **has ranked USUHS graduate programs in public health, which focus on community health, sixth in the nation for the last two years.**
>
> - **Michael D. Maves, M.D., MBA, Executive Vice President, CEO, the American Medical Association,** Letter to the Deputy Secretary of Defense, May 6, 2005.

During 2004, the University continued to serve as the Academic Center for Military Medicine for the 2,416 uniformed, off-campus USU faculty, who are located throughout the Military Health System (MHS). For example, ***during the USU Commencement Exercises of 2004, 38 uniformed officers received advanced degrees from the USU Graduate Education Programs*** (34 Masters Degrees and 4 Doctoral Degrees). Through its continuing medical education programs and academic centers, the University also presented military-relevant conferences and continued its collaborative efforts for the MHS.

The following are just a few selected examples of the superb response of the USU Educational Programs to the special needs of the Uniformed Services.

The Interdisciplinary Graduate Program in Emerging Infectious Diseases. This interdisciplinary Ph.D. training program is designed primarily for individuals who wish to devote their graduate training to the study of the pathogenesis, host response, and epidemiology of infectious diseases. The mission of the Emerging Infectious Diseases (EID) Graduate Program is to provide the scientific community with broadly-trained, outstanding scientists who can contribute significantly to the increasingly complex field of infectious disease mechanisms and pathogenesis. The importance of accomplishing these educational goals in the area of EID research cannot be underestimated given the increasing threats of bioterrorism and the risks associated with emerging and re-emerging infectious diseases. ***As part of the EID Program, courses on the agents and effects of bioterrorism are offered. To date, this program is one of the only graduate***

programs in the Nation to offer formal training in this critical area. Nine uniformed and civilian students entered the program, in August of 2004. (*See Section IV, GRADUATE EDUCATION PROGRAMS, for further detail on this one-of-a-kind program*.)

The USU SOM Graduate Education Programs in Preventive Medicine and Public Health Rank 6th in the Nation. Throughout 2004, the USU School of Medicine (SOM) Preventive Medicine and Biometrics (PMB) Graduate Programs continued on-going collaborative educational agreements with the Walter Reed Army Medical Center Preventive Medicine Residency Program and Internal Medicine Fellowship Program, the Army Program for Training in Health Services Administration, the United States Army Laboratory Animal Medicine Program, the Navy Dental Research Institute Program in Dental Public Health, and the Indian Health Service Environmental Health Training Program. In addition, the PMB Department is affiliated with the United States Army and Navy Overseas Biomedical Research Laboratories located in: Bangkok, Thailand; Rio de Janeiro, Brazil; Nairobi, Kenya; Cairo, Egypt; Jakarta, Indonesia; and, Lima, Peru. ***During 2004, the USU PMB Graduate Education Programs and Courses provided outstanding responsiveness to specific requests of the Uniformed Services; selected examples follow.***

- ***The Occupational Ergonomics Program.*** Recognizing the importance of occupational musculoskeletal injuries among military personnel and, in response to the Army's request for specialty training in occupational ergonomics within the USU Master of Public Health (MPH) Program, a new area of concentration was established, ***the Occupational Ergonomics Concentration in the PMB MPH Program***. USU faculty collaborate with the Army Center for Health Promotion and Preventive Medicine and offer courses in ergonomics, injury control, and health and safety; a number of students have completed their MPH research in this area. ***The Occupational Ergonomics Program is the only established graduate-level injury prevention program in the Department of Defense.***

- ***The International Health Specialist (IHS) Program.*** Numerous After-Action Reports (AARs) indicated that Humanitarian Assistance (HA) and Disaster Response (DR) missions would benefit if members of the Air Force Medical System (AFMS) received additional training. The goal of the IHS Program is to prepare regionally-focused military medical experts who can help prepare uniformed forces for operational contingencies and the global response to medical crises, during combat or peacetime deployments. ***Each graduate understands the components, operations, and financing of health delivery services and has the administrative skills to plan, analyze, manage, and improve public health programs for the Uniformed Services. The graduate also understands the role that the United States military and other organizations and agencies play in addressing global health issues***. Four students graduated from the IHS Program, during 2004; four additional IHS students are projected to graduate, in June of 2005.

- ***The Master of Science in Public Health (MSPH) Program.*** USU has graduated eight degree candidates between 2000 and April of 2005. Thirteen Army, Navy, and Air Force officers are currently enrolled in the Environmental and Occupational Health and the Health Physics specialties in the MSPH Program; two of these students are expected to graduate in 2005. The students and program faculty work closely with the Uniformed Services and other Federal and international organizations to ***identify and address current needs of operational forces and emergency responders***. ***Past and current projects have included the development of chemical warfare detection methods and instrumentation***.

- ***The TriService Advanced Military Tropical Medicine Course.*** The PMB TriService Advanced Military Tropical Medicine Course has been offered at USU, beginning in 1996, through the Summer of 2004. During 2004, 82 military medical officer students were ***trained in operational military medicine, consisting of four weeks of lectures and laboratories in the advanced diagnosis and treatment of tropical diseases. Approximately 70 lecturers provided over 106.5 hours of didactic instruction. To date, over 505 students have completed the course.*** One hundred and thirteen continuing medical education hours (CME) were awarded during the past year; the overseas field missions were attended by 50 medical officers (El Salvador - 10; Bolivia - 10; Peru - 11; Guyana - 11; Cairo - 6; and, Thailand - 2). ***A medical officer used the training received in this course to make the initial diagnosis of malaria during the outbreak of malaria in Joint Task Force Liberia personnel, in 2003; an action that very likely prevented disability and saved lives.***

- ***The Tropical Medicine and Travelers' Health Course.*** The PMB Tropical Medicine and Travelers' Health Course is offered as a 12-week course during the Spring Quarter of the MPH Program. ***It includes lecture, seminar, laboratory and case-based curriculum approved by the American Society of Tropical Medicine and Hygiene and leads to eligibility for the qualifying examination in Tropical Medicine and Travelers' Health.*** To date, 37 uniformed medical officers and 14 civilian physicians have completed the course.

- ***The Diagnostic Parasitology Course.*** The Diagnostic Parasitology Course is offered as a series of lectures and hands-on laboratory sessions for individuals wishing to ***study parasitic infections in humans***. Uniformed and civilian medical technologists and physicians from all parts of the world have completed this course. Since 1988, over 300 individuals have taken the course, to include 9 individuals who took the course, during 2004.

- ***Medical Executives Skills Program (MedExec).*** Integrating Clinical and Managerial Decisions to Improve Population Health, a five-day in-class portion of the MedExec Program, is held five times each year throughout CONUS and Atlantic and Pacific TRICARE Regions. ***The focus of the course is to equip health care professionals with the knowledge and tools needed to integrate clinical and business decisions to improve health care delivery and population health. To date, 37 sessions have been held in the TRICARE Regions and over 1,000 senior officers have been trained for the MHS***.

(*See Sections II, RESEARCH CENTERS AND PROGRAMS, and IV, GRADUATE EDUCATION PROGRAMS, for further information on the PMB and other Graduate Education Programs at USU*.)

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***OBJECTIVE* - USU will develop and deploy continuing health education and distance learning programs to cost-effectively enhance the competency of military health care professionals in military unique curriculum.**

USU Provides Nationally Recognized Continuing Education Credit. The USU Office of Continuing Education for Health Professionals (CHE) provides nationally recognized continuing education credit for physicians, nurses, psychologists, health care executives, and social workers through its accreditation by: 1) the Accreditation Council for Continuing Medical Education; 2) the American Nurses Credentialing Center's Commission on Accreditation as a Provider of Continuing Education in Nursing; 3) the American Psychological Association; 4) the American College of Healthcare Executives; and, 5) the State of Maryland Department of Health and Mental Hygiene Board of Social Work Examiners. ***This inclusive provision of continuing education for multiple disciplines, from one office, is believed to be unique within the Military Health System (MHS)***. During Fiscal Year 2004, to the present, there has been a marked increase in CHE's Internet activities that are focused on enhancing the competency of military health care professionals in military unique curriculum; ***the following selected examples are provided, at no cost, by the USU Office of CHE***.

DoD Smallpox Vaccination: Standard Training. The threat of smallpox provided the momentum for a partnership between the DoD Military Vaccine Agency (MILVAX) and USU. ***DoD Smallpox Vaccination: Standard Training*** consists of sessions grouped specifically for three levels of professional smallpox vaccination program responsibility. Since the beginning of this activity, 3,286 participants have successfully completed these sessions. Of these, 523 physicians, 325 nurses, and 27 ACHE members were able to earn the following credit: up to 53.5 continuing medical education (CME); 63.7 continuing nursing education (CNE); and, 10.5 category II (non-ACHE) credits. This program is available, *at no cost*, to the general public at <*http://dod.digiscript.com*>.

Military Vaccine Agency (MILVAX) Spokesperson Training Course. The ***Military Vaccine Agency (MILVAX) Spokesperson Training Course*** started during Fiscal Year 2004. It is a condensed version of a three-day conference, which provides a variety of information related tasks regarding the Anthrax Vaccine Immunization Program (AVIP) and the Smallpox Vaccination Program (SVP), through either an administrative or clinical focus. This activity is available, *at no cost*, to the general public at <*http://dod.digiscript.com*>.

On-Line Forum for Current Advancements in Deployment Medicine. The Journal of Special Operations Medicine is a quarterly, peer-reviewed journal geared to Special Operations Forces medical professionals. Its mission is to promote the professional development of Special Operations medical personnel by providing a forum for the latest relevant advancements in deployment medicine. USU provides continuing education to health providers who read the article(s) and successfully complete the post-test(s). The Journal of Special Operations Medicine is available, *at no cost*, at <*http://www.hurlburt.af.mil/jsou*>.

(*Section VI of the Journal provides detailed information on the USU Office of Continuing Education for Health Professionals*.)

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<u>OBJECTIVE</u> - USU will ensure that all programs meet or exceed national standards for accreditation.

<u>USU Programs Receive Maximum Terms of Accreditation</u>.

Maximum Term of Accreditation with Commendation Is Granted to USU. The University received maximum accreditation, with commendation, from the Middle States Commission on Higher Education, during 2003, for a period of ten years. In addition to accreditation from the Middle States Commission, the USU Office of Continuing Education for Health Professionals (CHE) ensures the University's ability to provide nationally recognized continuing education credit for physicians, nurses, psychologists, health care executives, and social workers through continued accreditation by: 1) the Accreditation Council for Continuing Medical Education; 2) the American Nurses Credentialing Center's Commission on Accreditation as a Provider of Continuing Education in Nursing; 3) the American Psychological Association; 4) the American College of Healthcare Executives; and, 5) the State of Maryland Department of Health and Mental Hygiene Board of Social Work Examiners. Also, the University maintains full accreditation from the American Association for the Accreditation of Laboratory Animal Care (AAALAC) and the Nuclear Regulatory Commission (NRC). (*See ACCREDITATION, which follows in this section of the Journal for further information*.)

Maximum Term of Accreditation Continues for the School of Medicine. The accreditation process of the Liaison Committee on Medical Education (LCME) is designed to certify that a medical program meets prescribed standards; and, by awarding accreditation, the LCME indicates confidence in the quality of the medical school program. The USU School of Medicine (SOM) received provisional accreditation from the LCME in 1976; the SOM was fully accredited in 1979, and has continuously maintained that status. Following its last accreditation process, the LCME provided official notice, on April 13, 2000, that the SOM, to include the USU SOM Graduate Education Programs, had received continued maximum accreditation for the educational program leading to the Medical Doctor Degree for a seven-year term. The next full survey will take place during the 2006-2007 Academic Year.

In addition to its inclusion in the accreditation granted to the University by the Middle States Commission on Higher Education and the SOM's accreditation by the LCME, ***the following professional organizations continue to authorize accreditation for the various programs and activities of the SOM*:** 1) the Accreditation Council for Continuing Medical Education; 2) the Council on Education for Public Health (CEPH); 3) the American Psychological Association (APA) Committee on Accreditation; and, 4) the Accreditation Board for Engineering and Technology (ABET). Also, SOM Steering Committees are actively involved with the accreditation process for two additional areas of responsibility reviewed by: 5) the American Association for the Accreditation of Laboratory Animal Care; and, 6) the Nuclear Regulatory Commission. (*See Section II, ACCREDITATION, for further information relevant to the School of Medicine; and, see ACCREDITATION in Section IV for further information relevant to the USU SOM Graduate Education Programs.*)

Maximum Terms of Accreditation with Commendation Are Granted to the Graduate School of Nursing. The USU Graduate School of Nursing (GSN) has received maximum accreditation from its three accrediting entities: 1) on March 18, 2002, the University was formally notified of the action taken by the National League for Nursing Accrediting Commission (NLNAC) at its meeting held on February 27, 2002: **The Commission approved the Master Degree Program for continuing accreditation and scheduled the next evaluation visit for the Fall of 2009**; 2) on May 16, 2002, the USU GSN received official notification from the Commission on Collegiate Nursing Education (CCNE) that: **The CCNE Board of Commissioners acted at its meeting on April 20, 2002, to grant accreditation of the Master Degree Program in Nursing at the Uniformed Services University of the Health Sciences for a term of 10 years, extending to June 30, 2012. The Board additionally determined that there are no compliance concerns with respect to the key elements**; and, 3) on October 31, 2003, **USU received notification that the Nurse Anesthesia Program had been awarded a ten-year accreditation as the very first program in the Nation re-accredited under the new standards and the first to be granted the maximum ten-year re-accreditation.** The COA commended the University for its excellent program and noted zero critical weaknesses. (*See Section III, ACCREDITATION, for further information.*)

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GOAL 2: MILITARY SERVICE: To provide graduates, faculty, and staff who serve as experts in the medical response to Disasters, War, and Humanitarian Crises.

OBJECTIVE* - *Produce skilled professionals with special orientation in those aspects of medicine, science, and nursing to support the Military and Federal Health Care Systems.

USU Graduates Provide Military-Unique Expertise and Present Clinical Skills Required for MHS Residency Programs and Certification Examinations.

School of Medicine Alumni.

USUHS alumni possess, at graduation, the essential knowledge, skills, and attitudes required during Joint Service Deployments.

- **The Honorable Donald H. Rumsfeld, Secretary of Defense,** Narrative Statement and Citation to accompany the Distinguished Civilian Service Award, August 2, 2004.

The quality of your graduates continues to serve as a testament to the quality of the teaching that was endorsed by the Middle States Commission. You and your staff continue to make significant contributions to our Nation's military readiness and our national medical preparedness.

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense, Health Affairs,** Letter to the USU President, July 22, 2003.

Evidence of the High Quality of USU SOM Training Comes from Many Sources. Each academic year, the Association of American Medical Colleges (AAMC), with the assistance of medical school administrators, conducts a survey of graduating seniors at medical schools throughout the United States. Students are asked to rate statements that cover their entire medical school experience. Included among the numerous topics surveyed are premedical preparation, pre-clinical education, clinical experiences, student services and the overall quality of the medical education received. The USU Office of Student Affairs reported that the ratings of the Year 2004 Medical School Graduation Questionnaire show a consistently strong, positive evaluation by USU students at a level well above the all-schools comparison. ***For example, 61.1 percent of the USU SOM seniors strongly agreed with the statement, Overall, I am satisfied with my medical education. Whereas, when averaging the replies from all responding medical schools in the United States, only 38.6 percent rated the statement as strongly agree***.

Traditionally, more than 75 percent of USU SOM graduates receive their first choice of specialty and location for their first year of residency training. ***The results of the 2004 Joint Service Graduate Medical Education (GME) Selection Board for the USU SOM Class of 2005 were favorable.*** The overall

selection rate for FIRST CHOICE programs was 66 percent; 112 out of 168 USU SOM students matched for their first choice both in specialty and training site. Sixteen additional students received their first choice in specialty for ***a resulting total of 76 percent who received first choice in specialty. Feedback obtained from residency program directors indicates that the SOM graduates are consistently recognized as well-prepared to complete graduate medical training.***

USU ***SOM students have consistently passed the United States Medical Licensing Examination (USMLE) Steps 1 and 2 at rates equal to, or higher than, the national average***. In 1999, the National Board of Medical Examiners (NBME) began computer-based testing (CBT) for the USMLE Step 1 and 2 Examinations. The USUHS first-time pass average for the Step 1 Board Examination, during 2004, was 93 percent. ***Most of the USU fourth-year students (SOM Class of 2005) completed the Step 2 CBT between July and September of 2004. The overall performance for the Class of 2005 was strong; the average score for the class was 213; and, the pass rate was 93 percent***.

An example of the critical role of USU SOM graduates in the MHS was reported to the Congress in both 2002 and 2003, when the Surgeon General of the Navy testified that the Center for Navy Analysis (CNA) had provided significant data on the retention of physicians. The Navy Surgeon General informed the Congressional Committees that his most undermanned specialties were general surgery and all surgical subspecialties, orthopedic surgery, diagnostic radiology, anesthesiology, and urology. ***Many of these specialties are critical wartime specialties and shortfalls could have a negative impact on medical readiness. Overall, the median length of non-obligated service for physician specialists averages only 4.4 years. That average drops to 2.9 years when USU graduates are excluded; the median length of non-obligated service as a specialist for USU graduates is 9 years***. Thus, the USU SOM alumni are providing essential support for medical readiness.

The critical requirement for USU SOM graduates has been independently documented for over ten years. For example, following an inclusive review in 1995, the General Accounting Office (GAO) confirmed that ***43 out of 44 commanders of major military medical units perceived that physicians from the University have a greater overall understanding of the military, greater commitment to the military, better preparation for operational assignments, and better preparation for leadership roles.*** The GAO reviewers also pointed out that ***they perceive that University graduates have a better appreciation of and greater satisfaction with the physician's role within the military*** than other accession sources (General Accounting Office Report, *Military Physicians - DoD's Medical School and Scholarship Program*, September 29, 1995, page 43). ***Congressional testimony, by the Surgeons General and the Office of the Assistant Secretary of Defense for Health Affairs, strongly reflects that these significant findings have been validated over the past ten years***. (*See ALUMNI in Section II of the Journal for further information*.)

Graduate School of Nursing Alumni.

The Federal Nursing Chiefs met with the program evaluators and gave testimony to their support of the GSN. Comments during the meeting with the Federal Chiefs included: 1) we are excited to see the quality of the students who graduate from this program... they are exceptional leaders; 2) we are directly involved in helping the School understand the type of skills graduates need and find them very responsive to our suggestions.

- **Site Surveyors from the National League for Nursing Accrediting Commission,** Final Report, Nov. 1, 2001.

GSN Alumni Have Established Extraordinary Results on National Certification Examinations and Performance Evaluations. The immediate measurable standard of success for the GSN alumni is the passing of the National Certification Examinations. ***Over 97 percent of the GSN graduates have passed the National Certification Examinations at the upper percentile, on their initial examinations***. GSN graduates have excelled in achieving national certification as advanced practice nurses in their specialties, with a ***100 percent, first attempt pass rate from graduates of the Family Nurse Practitioner and Nurse Anesthesia Options in the MSN Program for the Class of 2004***. Of the 103 Family Nurse Practitioner (FNP) graduates, all have passed their certification examination, with 100 doing so on their first attempt. To further illustrate the academic excellence of the GSN graduates, 12 of the 17 graduates from the GSN Nurse Anesthesia Program and the Navy Nurse Corps Anesthesia Program, Class of 2004, who took the certification examination for nurse anesthetists scored the maximum possible score of 600, ***the average score of the GSN NA Class of 2004 was 596.2 (with a standard deviation of 8), well above the national average, which was 551.5 (with a standard deviation of 63)***.

Another short-term measure is the GSN graduate's performance as an advanced practice nurse, as determined by the graduate's immediate supervisor. One year after graduation, both the GSN alumni and their supervisors are concurrently surveyed. Immediate supervisors, familiar with the day-to-day performance of the GSN graduates, are queried regarding specific areas of the alumni's strengths and weaknesses in clinical specialty performance. This information is collated and compared to the graduates' self-performance ratings. In addition, the GSN asks its graduates to complete an end-of-program evaluation, followed by one-year and three-year (Family Nurse Practitioner only) post-graduation evaluations. Information from the surveys is tracked and trended to identify any needed revisions or additions to course or clinical content or experiences. ***Reviews of the end-of-program, alumni, and employer evaluation data by the GSN and the Federal Nursing Chiefs ensure that the GSN curriculum is meeting the requirements of the Uniformed Services. This process continued during 2004, with a strong overall response that reflects satisfaction with the GSN Alumni***.

During 2004, many GSN alumni were recognized by their services for their clinical skills and expertise through their ***appointments to the faculty of the Expeditionary Medical Support (EMEDS) Course***, USAF School of Aerospace Medicine, Brooks City-Base, Texas. The EMEDS Course is the state-of-the-art Air Force casualty care course that is attended by all deployed Air Force Medical Service personnel; ***and, the prestigious TriService Joint Readiness Clinical Advisory Board (JRCAB),*** located at Fort Detrick, Maryland. (*See ALUMNI in Section III of the Journal for further information*.)

***Alumni of the USU SOM Graduate Education Programs*.**

The graduate programs at USU are important to the University for many reasons. They help to train a cadre of well qualified, experienced biomedical scientists and public health practitioners who will continue the tradition of scientific service to the Nation in the civilian and military worlds. Strong graduate programs are important because of the major effect active graduate programs have on the intellectual vitality of departments and programs. The presence of well-populated and thriving graduate programs is also an important factor in the recruitment of the best applicants for faculty positions at the University. USU graduate programs already serve these multiple needs.

- *VIII, Graduate Education in the Biomedical Sciences and Public Health*, Subcommittee Report, Middle States Association of Colleges and Schools (MSA) Self-Study, submitted to the Evaluation Team representing the Middle States Commission on Higher Education prior to the site visit on March 30 - April 2, 2003.

USU SOM Graduate Education Program Alumni Provide Essential Support to the Military Health System*.** The early founders of USU understood, that in order to gain and sustain accreditation, Graduate Education Programs had to be structured within the School of Medicine (SOM). The USU SOM admitted its first graduate students in 1977; ***since its establishment, through April of 2005, a total of 845 advanced degrees have been granted by the University: 251 Doctors of Philosophy; 15 Doctors of Public Health; 82 Masters of Science; 457 Masters of Public Health (***more than 90 percent of the graduates of the MPH Program return to their individual Services and continue to hold public health positions throughout DoD***); 8 Masters of Science in Public Health; 28 Masters of Tropical Medicine and Hygiene; and, 4 Masters of Military Medical History. Of the 160 graduate education students enrolled during 2004, 114 were Ph.D. or DrPH students, and 46 were Master Degree candidates. Graduate Education Programs in the basic medical sciences benefit the USU and the Military Medical System by providing training opportunities for qualified active duty personnel of the Uniformed Services who receive authorization to participate in the USU graduate training programs under the sponsorship of their parent Services (***as reported in the 2004 USU Cost Avoidance Fact Sheet, 38 uniformed officers received advanced degrees during the May 2004 graduation ceremonies***). It is particularly gratifying for the USU faculty to note that a sizeable number of USU Graduate Program alumni hold career level appointments in DoD research, clinical, and educational agencies. Furthermore, a sizeable group of other graduates occupy responsible positions in other Federal government agencies concerned with the general maintenance of the Nation's health. (*See Goal 4, which follows, and Section IV for further information on the ALUMNI of the USU SOM Graduate Education Programs*.)

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GOAL 3: RESEARCH: To be a leader in basic, clinical, and health services research to improve health care, to protect, sustain and enhance the fighting force and secure public health.

OBJECTIVE* - *USU will emphasize research and development relevant to military, Federal, and homeland security needs.

Essential Science Indicators, an ISI evaluation tool, ranks the top journals and nations, and the top 1 percent of scientists, institutions and companies by field of research. To be even listed in any one category, an institution has to be in the top 1 percent by number of citations in the period covered by Essential Science Indicators (ESI). For the period covering the last ten years, USU ranked in the top 1 percent in seven fields: Clinical Medicine; Immunology; Biology & Biochemistry; Microbiology; Neuroscience & Behavior; Psychiatry/Psychology; and, General Social Sciences. This ranking is based on the number of citations received by papers published by USU Faculty in the period.

- **Ms. Ursula Scott, Assistant Vice President, USU Learning Resource Center,** *Essential Science Indicators and USU*, USU Communications Network, February 17, 2004.

USU Research Is Directed Toward Military Requirements. The majority of the research programs and projects currently taking place at USU are focused on meeting the needs of the Uniformed Services. Research protocols, throughout USU, study diseases of high military relevance for troop deployment and sustainment. ***During 2004, the USU $2.4 million INTRAMURAL RESEARCH PROGRAM consisted of 66 protocols,*** 38 awards for clinical research, and two projects in the areas of educational research. ***USU provided oversight, during 2004, for 13 multi-site, CONGRESSIONALLY FUNDED RESEARCH PROGRAMS; together, these 13 programs, funded at $65 million, support more than 180 individual research projects conducted at USU and elsewhere.*** Federal agencies such as the National Institutes of Health (NIH), the National Science Foundation (NSF), the Department of Energy (DOE), the United States Army Medical Research and Materiel Command (USAMRMC), and the Office of Naval Research (ONR) support the ***EXTRAMURALLY FUNDED RESEARCH at USU; in 2004, extramural research included 136 projects funded at $58.4 million***. Over 400 active projects, funded at a total of $126 million, continue to explore a wide span of scientific areas, including basic biomedical questions central to the mission of the MHS, such as: 1) the mechanisms, transmission and control of a wide range of infectious and/or common diseases that may be faced by warfighters; 2) a variety of crucial topics in combat casualty care, operational medicine, and health education and promotion; 3) women's health issues in the DoD; and, 4) the development of new methods for the diagnosis and treatment of medical problems faced by the United States military and their dependents.

The understanding gleaned by USU's military relevant research is opening avenues to better ensure medical readiness and quality care under austere circumstances. as reflected in the following selected examples.

- A USU trauma surgeon and his research team ***evaluated a number of agents to control bleeding from wounds on the battlefield leading to the development and fielding of QuikClot, which is now included in a new aid bag; over 15,000 bags have been issued to Marines currently deployed in Iraq***.

- A USU off-campus faculty member worked with a USU-based team and ***developed body-armor that is currently fielded, utilized in combat zones, and saving countless lives***.

- USU faculty and SOM alumnus are leading the Army's ***Regional Anesthesia Pain Management Initiative*** and have performed the procedure at the 31st Combat Support Hospital in Baghdad; regional anesthesia ***allows continuous access for local anesthetic to control pain and is being used on the battlefield and in support hospitals to provide continuous pain control from the point of injury through extended evacuation to Germany and the United States.***

- USU is ***part of a Middle Atlantic Region University Consortium*** that was recently selected by the Department of Health and Human Services ***as one of eight Regional Centers of Excellence for Biodefense and Emerging Infectious Diseases***.

- USU was ***awarded a subcontract to provide a Select Agent Toxin Reference Laboratory for the Nation*** through the Biodefense and Emerging Infections Research Resources Laboratory, sponsored by the National Institutes of Allergy and Infectious Diseases.

(*See RESEARCH ADMINISTRATION from Section I and SELECTED PROFILES OF USU SOM FACULTY and RESEARCH CENTERS AND PROGRAMS in Section II of the Journal for further information on SOM Research*.)

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<u>OBJECTIVE</u> - USU will emphasize research objectives established by Service and Joint Service medical requirement documents.

<u>The Armed Forces Radiobiology Research Institute (AFRRI) Research Programs Are Globally Recognized</u>. Requests for presentations, briefings, collaborative agreements, provision of AFRRI-developed software applications, or on-going membership, during 2004, were listed in detail under the second objective of the first Goal in this section.

Six Defense Technology Objectives (DTOs) guide the thrust of AFRRI's research. *A DTO is a specifically recognized high priority element of technology advancement*. The product of a DTO is expected not only to enhance military operational capability, but also to address other important issues

such as affordability and dual-use application, both of which receive special emphasis in the Defense Science and Technology Strategy. Each of AFRRI's six DTOs supports the Quadrennial Defense Review Transformation Operational Goal to Project and Sustain United States Forces. In direct response to its assigned DTOs, AFRRI has achieved the following selected accomplishments: ***1)*** AFRRI investigators have demonstrated significant radioprotective qualities of a non-androgenic steroid, ***5-androstenedial (5-AED)***. The drug has no measurable toxicity at the doses being used to achieve protection; *5-AED* is on track for the submission of an investigational new drug application to the Food and Drug Administration (FDA), during the first half of Calendar Year 2005, to initiate clinical studies in the United States; ***2)*** the AFRRI Biological Dosimetry Team has developed the ***Biodosimetry Assessment Tool (BAT) software program***, to promote the rapid collection of data for early use after a radiation exposure incident; to provide diagnostic and therapeutic information needed to manage radiation casualties; and, to record related clinical information. ***In 2004, AFRRI launched the Radiation Biological Dosimetry Tools for Emergency Responders web page*** at <*www.afrri.usuhs.mil/www/outreach/biodostools.htm*>; and, ***3)*** AFRRI's ***Rapid Field-Based Depleted Uranium Detection Assay*** has been patented and is expected to transition within the next two to three years. (*See Section VII of the Journal for further information on research at AFRRI*.)

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<u>OBJECTIVE</u> - Develop institutional research for self study/enhancement.

<u>USU Center for Health Disparities Research and Education</u>. The USU SOM Departments of Medical and Clinical Psychology <u>and</u> Family Medicine were awarded a $7 million grant from the National Institutes of Health (NIH) National Center on Minority Health and Health Disparities, to sponsor the USU Center for Health Disparities Research and Education, referred to as *Project EXPORT*. The Center's goal is to promote positive health-related change and ultimately eliminate disparities among racial and ethnic minorities through research, education, training, community outreach, and information dissemination. During 2004, the Center's Research Component sponsored four research projects, which utilized networks outside of traditional settings to eliminate health disparities, weight management studies, health assessment surveys, and cultural proficiency training to achieve the Center's goals. ***The Center's Education Component provided cultural sensitivity training for eight of the twelve Family Medicine Clerkship rotation sites at the various Army, Navy, and Air Force activities where USU medical students carry out their actual clerkships.*** The Community Outreach and Information Dissemination Component collaborated with multiple partners to solidify programs for high school students to tour USU and learn about careers in the health care field. Other partners worked with the Center to maximize the health care provider's encounter as a tool in reducing health disparities through its sponsorship of interactive workshops, presentations by improvisational actors, and the development of questionnaires. **Richard Tanenbaum, Ph.D., USU SOM Department of Medical and Clinical Psychology,** serves as the Principal Investigator. **David S. Krantz, Ph.D., Professor and Chair, USU SOM Department of Medical and Clinical Psychology,** is the Center Director; and, **Lori Dickerson-Odoms** is the Program Manager. (*See CURRICULUM RENEWAL and RESEARCH PROGRAMS AND CENTERS in Section II of the Journal for further information on Project EXPORT*.)

<u>The USU Center for Medical Genomics and Proteomics Is One of Ten Academic Organizations Funded by NIH</u>. **Harvey B. Pollard, M.D., Ph.D., Professor and Chair, USU SOM Department of Anatomy, Physiology and Genetics (APG),** is the principal investigator for an NIH-sponsored study on

the proteomics of cystic fibrosis; one of ten academic organizations in the Nation to win substantial support ($12.7 million over seven years) from the NIH, the award supports the USU Center for Medical Genomics and Proteomics. There are ten centers for medical proteomics in the Nation, the USU Center focuses its research attention on the lung. ***The Scientist, one of the most respected scientific periodicals in the country, has cited the USU Center as the model on how to do drug discovery.*** The Center's research team includes 20 faculty members from various departments across the University. ***The Center's state-of-the-art research equipment is being made available to benefit researchers across the University***. (*See APG, Appendix C for further information*.)

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GOAL 4: LEADERSHIP: To develop and provide uniformed and Federal leaders for national health care service focused on mission readiness and homeland security.

OBJECTIVE* - *Ensure that faculty and alumni achieve positions of leadership in the Department of Defense and the Federal government.

USU School of Medicine Alumni Provide Continuity and Leadership for the MHS.

***Reliability and Sustainability of Accession Sources*: Of current accession programs, USUHS is the most reliable and cost-effective source for filling senior leader requirements. USUHS currently provides 23 % of all active duty physicians. Removing USUHS as an accession source introduces significant risk of physician shortfalls. Accessions from the Health Professions Scholarship Program (HPSP) alone are an unproven source for proper design and mix of the medical force structure. Congress and DoD created the current integrated and complementary triad of physician accession sources to provide the numbers, required specialties, and experience (rank) required to meet MHS missions. The HPSP provides the bulk of the required physicians of lower rank and experience, only 5 % of which remain on active duty beyond their initial obligations. USUHS provides a stable cadre of career military physicians and other healthcare professionals in all specialties.**

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs,** Briefing on USU before OSD Leadership, April 18, 2005.

The SOM graduating Class of 2004 was the twenty-fifth class to receive Medical Degrees from USU. ***As of April 2005***, of the total 3,587 medical school graduates, 2,695 remain on active duty in the Uniformed Services (Army - 1,035; Navy - 780; Air Force - 792; USPHS - 88); and, ***the 2,607 USU SOM alumni on active duty in the Military Health System represent over 22.7 percent of the active duty physician force in the DoD, which totals 11,495 physicians***. The average USUS physician graduate is serving approximately 20 years on active duty.

The critical role of USU graduates in providing medical readiness was reported to the senior leadership of OSD by the Assistant Secretary of Defense, Health Affairs, on April 18, 2005. That briefing validated the need for USUHS as a guaranteed and proven source for the right physician leaders, which will become even more important as DoD fights future wars.

USU graduates have become well respected in their medical specialties and provide continuity and leadership for the MHS, serving in areas of military medicine ranging from special operations and hospitals, to the White House, and the newly established Department of Homeland Security, to deployments in Afghanistan and Iraq, and to assignments aboard ships at sea or with the Blue Angels. Currently, **Brigadier General Charles Fox, MC, USA, USU SOM Class of 1981,** is serving as the Commanding General at the Brooke Army Medical Center and Great Plains Regional Medical Command at Fort Sam Houston, Texas. **Brigadier General Bill Germann, USAF, MC, USU SOM Class of 1982,** is commanding the

89th Medical Group, Malcolm Grow USAF Medical Center, at Andrews Air Force Base, Maryland; and, **Brigadier General Thomas Travis, USAF, MC, USU SOM Class of 1986,** is currently serving as the Commander of the 311th Human Systems Wing, Brooks City-Base (formerly Brooks Air Force Base), Texas. ***Examples of promotions to 0-6 during 2004 include the following*: Army -** 35 percent of the medical corps officers selected for promotion to Colonel were USU SOM graduates; **Navy -** There were 197 physicians considered for promotion to 0-6, in or above zone; overall, 28 physicians were selected for promotion. Of the 21 USU alumni considered for promotion, in or above zone, 6 were selected, resulting in a 28.6 percent selection rate (as compared to the 11.4 percent selection rate for the non-USU physicians being considered); **Air Force -** 45 physicians were selected for promotion to 0-6; the 17 USU SOM alumni selected for promotion represented 38 percent of those selected for promotion. (*See Section II, SOM ALUMNI, for further examples of SOM Alumni accomplishments, which are individually provided for each Graduating Class*.)

USU Graduate School of Nursing Alumni Provide Leadership for the MHS.

For military health care providers, *the fight* is different. They must be prepared to care for the sick, save lives, and beat the odds in severe environments. Many people think those odds are diminished severely after an injury on the battlefield. But, with the right preparation in operational readiness, nurses and physicians can make the difference.

- Nursing Spectrum, *Caring for Those in Harm's Way*, Volume 13, No. 6DC, March 24, 2003, page 8.

Numerous USU GSN Alumni Were Providing Leadership for the MHS, during 2004; Selected Examples Are Provided.

Lieutenant Colonel Nancy Heisterman, USAF, NC, GSN Class of 1997, Family Nurse Practitioner, left her position as Chief of Utilization Review at the David Grant Medical Center, Travis Air Force Base, California, to start a new Nurse Transition Program at Nellis Air Force Base, Nevada. The new program is part of the hospital's professional education department.

Colonel Bridget Larew, USAF, NC, GSN Class of 1998, Family Nurse Practitioner, moved from her previous position as the Medical Services Flight Commander at Bolling Air Force Base, Washington, D.C., in the Fall of 2004; she is currently drafting and implementing AE Policy at the Pentagon.

Major Brian Todd, USAF, NC, GSN Class of 1999, Nurse Anesthesia, is an expert in field equipment; he was one of the first USAF CRNAs to use specialized anesthesia equipment in an austere environment. Due to his expertise, he was named to the prestigious TriService Joint Readiness Clinical Advisory Board (JRCAB) at Fort Detrick, Maryland. The JRCAB establishes equipment policy for the Services.

USU SOM Graduate Education Program Alumni Provide Leadership for the MHS.

The USUHS shall: 4.3. Grant applicable advanced academic degrees; establish postdoctoral and postgraduate programs, and technological institutes; conduct medical readiness training and continuing education for members of the Uniformed Services in the health professions; and prepare individuals for careers in the health professions in the Uniformed Services.

- DoD Directive 5105.45, dated March 9, 2000, page two.

The Following Are Selected Examples of the Achievements of the USU Graduate Education Program Alumni.

Class of 1994. **Commander Margaret A.K. Ryan, MC, USN, MPH, Director, DoD Center for Deployment Health Research, Naval Health Research Center, San Diego, California, USU Graduate Program Class of 1994,** who received a Master of Public Health Degree from USU, heads a team at the Naval Health Research Center that has worked on several initiatives to support, directly or indirectly, those uniformed personnel deployed to Operation Iraqi Freedom. Those initiatives include: equipping Naval Environmental Preventive Medicine Unit 5 and several ships (forward deployed) to better detect and rapidly diagnose pathogens causing respiratory illness in service members; assisting with the development of augmented post-deployment health assessments, as required by the Office of the Assistant Secretary of Defense, Health Affairs; partnering with the Centers for Disease Control (CDC) to address health concerns related to smallpox and anthrax vaccinations; and, standing ready to expeditiously assess the epidemiology of post-deployment health concerns.

Class of 1995. **CAPT Maura Emerson, MPH, MC, USN, Force Medical Officer, Military Sealift Command, Washington Navy Yard, USU Graduate Program Class of 1995,** who received a Master of Public Health Degree from USU, is responsible for the smallpox and other immunization tracking programs for all of the military and civilian contractors in the Military Sealift Command. CAPT Emerson also received her Medical Degree from USU, in 1988. **CAPT H. Jeffrey Yund, USN, USU Graduate Program Class of 1995,** who received a Master of Public Health Degree from USU, is currently the Preventive Medicine Officer at the Headquarters of the Marine Corps, where he serves as the Principal Advisor for Deployment Health Surveillance and the Smallpox and Anthrax Immunization Programs.

Classes of 1996 and 1998. **Lieutenant Colonel Jeffrey Adamovicz, USAF, Ph.D., USU Graduate Program Class of 1996,** who received a Doctoral Degree in Microbiology from USU, serves as the Chief of the Bacteriology Division of the United States Army Medical Research Institute of Infectious Diseases at Fort Detrick, Maryland. **Lieutenant Colonel Mark Arness, USAF, USU Graduate Program Class of 1998,** who received a Master of Tropical Medicine & Hygiene Degree from USU, is serving as an Air Force Preventive Medicine Officer at the Army Medical Surveillance Activity and Defense Medical Surveillance System, where he is responsible for post-deployment health surveillance and involved in adverse event surveillance following vaccination. **CAPT Ken Schor, USN, USU Graduate Program Class of 1998,** who received a Master of Public Health Degree from USU, is serving as the Preventive Medicine Officer at the Bureau of Medicine and Surgery (BUMED), where he serves as the Principal Advisor to the Surgeon General for Deployment Health Surveillance and the Smallpox and Anthrax Immunization Programs.

***Classes of 1999 and 2000*.** **CAPT Ed Kilbane, USN, USU Graduate Program Class of 1999,** who received a Master of Public Health Degree from USU, is a team leader of the forward deployed Naval Environmental Preventive Medicine Unit (NEPMU-7) in a classified operational location. **Lieutenant Commander Tanis Batsel, USN, USU Graduate Program Class of 2000,** who received a Master of Public Health Degree from USU, is assigned as the Chief of the Preventive Medicine Branch for the United States Northern Command and the North American Aerospace Defense Command (NORAD) at Peterson Air Force Base, Colorado; he also graduated from the USU SOM, in 1993.

***Classes of 2001 and 2002*.** **Major Philip L. Gould, MPH, DTMH, USAF, MC, Preventive Medicine Consultant, Deployment Health Surveillance/Suicide Surveillance, Epidemiology Services Branch, Air Force Institute for Environmental Safety and Occupational Health Risk Assessment, Brooks City-Base, Texas, USU Graduate Program Class of 2001,** who received a Master of Public Health Degree from USU, is assigned with deployment surveillance for all of the Central Command (CENTCOM) and assisting command units at the Air Force Institute for Environmental Safety and Occupational Health Risk Assessment (AFIERA). Personnel at AFIERA are at the forefront of surveillance for deployed troops, with responsibilities to provide routine briefs and reports for: the Secretary of Defense; the Assistant Secretary of Defense, Health Affairs; and, the Joint Chiefs of Staff. **Commander Byron Connor, USN, USU Graduate Program Class of 2002,** who received a Master of Public Health Degree from USU, is a member of the forward deployed Naval Environmental Preventive Medicine Unit (NEPMU-2) in a classified operational location. (*See Section IV, ALUMNI, for further information on the graduates of the USU SOM Graduate Education Programs*.)

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<u>OBJECTIVE</u> - Ensure that faculty and alumni achieve positions of leadership in professional and scientific organizations.

<u>USU Faculty Are Recognized for Leadership and Expertise.</u>

Faculty at USUHS are widely recognized among those of peer institutions for the excellence of the medical education program and are frequent invited speakers at our annual meetings on this important topic.

- **Jordan J. Cohen, M.D., President, Association of American Medical Colleges,** Letter to the Deputy Secretary of Defense, April 27, 2005.

This excellent health sciences university is now well established among the most highly respected of American health professional schools. I speak not only for myself, but for the Association of Academic Health Centers and for the leaders of our member academic health science centers.

- **Roger J. Bulger, M.D., President and CEO, Association of Academic Health Centers,** Letter to the Deputy Secretary of Defense, April 28, 2005.

Essential Science Indicators, an ISI evaluation tool, ranks the top journals and nations, and the top 1 percent of scientists, institutions and companies by field of research. To even be listed in any one category, an institution has to be in the top 1 percent by number of citations in the period covered by Essential Science Indicators (ESI). For the period covering the last ten years, USU ranked in the top 1 percent in seven fields: Clinical Medicine; Immunology; Biology & Biochemistry; Microbiology; Neuroscience & Behavior; Psychiatry/Psychology; and, General Social Sciences. This ranking is based on the number of citations received by papers published by USU faculty in the period.

- **Ms. Ursula Scott, Assistant Vice President, USU Learning Resource Center,** *Essential Science Indicators and USU*, February 17, 2004.

As of November 2004, there were 329 full time faculty members at USU (208 civilians; 121 uniformed officers) with 3,999 off-campus faculty (1,583 civilians; 2,416 uniformed officers). USU faculty members are regularly selected to serve on various study sections for the National Institutes of Health and for other research-granting agencies.

Many USU faculty members, due to their national/international reputations are:

- ***Selected to Serve on Editorial Boards.*** **Colonel Andrew J. Satin, USAF, MC, Professor and Chair, USU SOM Department of Obstetrics and Gynecology,** is a member of the Editorial Board of Obstetrics and Gynecology, the premier journal of his specialty; and, **Robert E. Goldstein, M.D., Professor and Chair, USU SOM Department of Medicine,** serves on the Editorial Boards of the American Journal of Cardiology and the Journal of the American College of Cardiology;

- ***Validated as the Equals of their Colleagues at other Medical Schools and Universities.*** In 2004, seventy-five USU faculty were the recipients of over $28 million in investigator-initiated, peer-reviewed funding; USU faculty publish extensively in high impact peer-reviewed journals; a USU faculty member leads one of ten state-of-the-art national proteomic centers funded by the National Heart Lung and Blood Institute; USU faculty are leading participants in a regional consortium of institutions funded by the National Institute of Allergy and Infectious Diseases to develop a Center of Excellence for Biodefense and Emerging Infectious Diseases; and, in recognition of its faculty, USU has been designated by the American Type Culture Collection as the reference center for toxins recognized as select agents in bioterrorism;

- ***Recognized as Senior Officers and Recipients of Distinguished Awards in a Wide Variety of Professional Organizations***. **Major Steve Durning, USAF, MC, Associate Professor, USU SOM Department of Medicine, was selected to receive** one of the most prestigious awards offered by the American College of Physicians, **the Herbert S. Waxman Award, during 2004**. The award is designed to provide national recognition to an outstanding medical educator. Major Durning, a general internist, directs the ***Introduction to Clinical Reasoning Course*** for second-year medical students; he has developed a variety of innovative measures that have significantly improved medical student performance on both standardized tests and clinical practicum. **Retired USU President, James A. Zimble, M.D., was selected as the Health Leader of the Year** by the Commissioned Officers Association of the United States Public Health Service (USPHS). Vice Admiral Zimble, USN (Ret.) was recognized for his commitment to performance-based leadership, force protection, technologic innovation, rapid reaction to global threats, and humanitarian crises;

- ***Featured in the National Media.*** During 2004-2005, **Michael J. Daly, Ph.D., Associate Professor, USU SOM Department of Pathology,** continued to conduct research in genome-based, high-throughput technologies of the radiation resistant bacterium *Deinococcus* radiodurans. Dr. Daly published an experimental paper in Science magazine, in November of 2004, showing that intracellular manganese accumulation facilitates radiation resistance. The paper was reported in newspapers and the research will be featured in a National Geographic Special, in 2005. A summary of this work was also published by Nature. Dr. Daly also brought in two new research grants from the Department of Energy to support his on-going work in radiation biology, totalling $1.3 million. A USU researcher, **Christopher C. Broder, Ph.D., Associate Professor, USU SOM Department of Microbiology & Immunology,** was recognized in the Proceedings of the National Academy of Sciences (PNAS) for his leadership of one of two groups to independently publish the identity of the human protein that facilitates infection by the Nipah and Hendra viruses. These two emerging infectious animal diseases are transmissible to humans and are considered as possible bioterror agents. Knowing both the viral and cell proteins involved in fusion will allow scientists to develop vaccines and treatments for these two important emerging infectious diseases; his research is funded by the National Institute of Allergy and Infectious Diseases (NIAID);

- ***Routinely Selected to Serve on University, Military, and Federal and Professional Organization Committees in a Variety of Leadership and Service Capacities.*** During 2004, **Emmanuel G. Cassimatis, M.D., Professor, USU SOM Department of Psychiatry, and USU SOM Associate Dean for Clinical Affairs,** was elected to serve as Chair of the Accreditation Council for Graduate Medical Education (ACGME) for a two-year period, effective October 1, 2004 (*he replaced Charles L. Rice, M.D., who was subsequently selected by the Secretary of Defense to serve as the fifth President of USU*). Dr. Cassimatis continues to serve on the American Medical Association (AMA) Council on Medical Education and on the AMA/American Board of Medical Specialties (ABMS) Liaison Committee on Specialty Boards, as the Immediate Past Chair for both organizations. He additionally serves on the Board of Managers of the Association of Military Surgeons of the United States (AMSUS), as the AMSUS Delegate to the AMA House of Delegates, and as the Vice President of the National Medical Veterans Society. **Colonel Andrew J. Satin, USAF, MC, Professor and Chair, USU SOM Department of Obstetrics and Gynecology,** became the first uniformed member appointed to the Accreditation Council for the Graduate Medical Education (ACGME) Residency Review Committee for Obstetrics and Gynecology. This twelve-member group is responsible for accreditation decisions for all Obstetrics and Gynecology Residency Programs in the United States. Dr. Satin also serves as an Oral Examiner for the American Board of Obstetrics and Gynecology. **Louis Pangaro, M.D., Professor of Medicine, Vice-Chairman, Educational Programs, USU SOM Department of Medicine,** was selected to serve as President of the Alliance for Clinical Education (ACE), a multidisciplinary group formed in 1992, to foster collaboration across specialties to promote excellence in the clinical education of medical students; its members represent all seven of the national organizations of clerkship directors; and,

- ***Recognized for Having Achieved National and International Recognition in the Military-Unique Practice of Health Care.*** During 2004, a USU-based campaign, *Courage to Care*, was conceived by **Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry, and Director, USU Center for the Study of Traumatic Stress.** In general, the campaign is geared toward the entire DoD community: active duty service members; members of the National Guard and Reserves; their families; and, the health and community providers who serve them. *Courage to Care* consists of ready-to-use fact sheets written for physician providers, as well as servicemen and women, on topics about military life and health. The first two fact sheets are titled, ***Reintegration Roadmap - Shared Sense of Purpose*** (for the health and social service provider) and ***Becoming a Couple Again - Creating a Shared Sense of Purpose*** (for military couples experiencing the transition). Doctor Ursano ensures that *Courage to Care* serves as an extension of USU's work in educating health providers and in enhancing their communication skills with the military family.

(*Sections II, III, IV, V, and VII of the Journal include specific recognition of faculty in the SOM, GSN, Graduate Education Programs, Graduate Medical Education, and AFRRI; Appendix C provides selected examples of individual faculty and group achievements.*)

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GOAL 5: STEWARDSHIP: We will protect and enhance the human and physical resources of the University, optimize productivity, promote a sense of family and community, while emphasizing flexibility in response to changing world conditions.

***OBJECTIVE* - *USU will recruit, reward, and retain outstanding and diverse students, faculty, and staff*.**

Construction Design, Additional Space, and Renovation Projects During 2004 Help to Retain and Recruit Students, Faculty, and Staff.

Construction of a New Building on the USU Campus*.** The University was first able to participate in the Military Construction (MILCON) Program in 1999; since that time, the USU President and the Vice President for Administration and Management (VAM) have led extensive coordinating efforts to increase available classroom and administrative space at USU through the construction of a new building. On September 25, 2001, USU was informed by the Bureau of Navy Medicine and Surgery (BUMED) that its construction project (Building E - USU Academic Program Center***) had been placed as a funded project in the Medical MILCON, for Fiscal Year 2006. On January 7, 2003, the TRICARE Management Activity (TMA) authorized the design of the USU Academic Program Center at a cost of $9.6 million and approved the project as an accelerated Program for Design; On July 20, 2004, the total cost was increased to $10.35 following the S-4 Design Meeting with TMA; the design process was completed during mid-2005, with construction slated to begin in mid-2006 (*the overall project calls for 55,220 gross square feet, which includes underground parking; the Program for Design distributes 39,969 gross square feet*).

***Navy Base Reallocation of Space to USU Results in Renovation Projects, during 2004*.** Since 1998, the University President and the VAM have coordinated with the National Naval Medical Center (NNMC) for the *reallocation of Buildings 28, 53, 59, 79, and 139 to USU for a total of 48,140 gross square feet of laboratory, administrative, and general support/maintenance areas*. On-going renovation took place, during 2004.

***Laboratory Renovations throughout Buildings A, B, C, and D*.** Laboratory space, throughout Buildings A, B, C, and D, has been renovated from 1993 through 2004, totalling 43,578 square feet (50.1 percent of the 86,926 square feet of laboratory space on the USU campus). During 2004, $2,301,879 was funded for laboratory renovations by the USU Facilities Division through collaborative efforts by the VAM; the USU Facilities Division; the Dean, SOM; the USU Vice Presidents for Research and Resource Management; and, Navy Facilities (NAVFAC).

***Strategic Planning for Facilities Maintenance*.** Nine years ago, the USU VAM coordinated with NAVFAC to develop a five-year facilities maintenance plan for the USU complex; that plan has now evolved into the current *Project Listing Process*. As all documentation has already been completed with NAVFAC, the Project Listing Process enables USU to utilize year-end funding. Projects totalling $7,497,848 were obligated, by the end of 2004. As a result, the USU campus is well maintained and reflects excellent stewardship on the part of the USU leadership. (*See STEWARDSHIP at the end of this Section*

of the Journal for detailed information on the construction of Building E, the Navy allocation of Space to USU, renovation of laboratory space, and facilities maintenance.)

Approval of USU Faculty Salary Schedules Is Essential for the Retention and Recruitment of Qualified Faculty. The Principal Deputy Assistant Secretary of Defense (Force Management Policy) approved salary schedules for the USU AD employees, during July of 2004. ***Significant to these efforts is the acquired ability for USU senior management to pay up to Executive Level I for any position that has been designated as essential and where the University must pay higher than the salary schedules to recruit and retain exceptional faculty and staff; this capability was accomplished due to the efforts of the USU President and the VAM.*** The salary schedules were updated, during January of 2005, to reflect the current pay status of Executive Level I. These on-going efforts are essential in order to attract and retain mission-essential faculty and staff at the University, which, in turn, enhances USU's ability to attract quality students.

USU Efforts for Human Capital Development.

Development Activities. During 2004, **Cindy C. Wilson, Ph.D., Professor, USU SOM Department of Family Medicine,** coordinated on behalf of her department with the SOM Offices of Faculty Affairs and Medical Education to sponsor numerous courses and seminars, which strongly supported faculty development, at USU. During 2004, 195 USU faculty members earned over 1,000 hours of continuing education. The USU Mentor Program and the USU Toastmasters International Club received support and guidance, throughout 2004. In addition numerous training opportunities were provided to the USU civilian workforce: 165 training vouchers and 75 on-line subscriptions for computer-related training for the Microsoft Office Suite; and, 441 employees were trained on-site, to include 70 attendees at the Ethics Training Classes. In addition, the Executive Leadership Program, New Leader Program, and Aspiring Leader Program have been on-going; four employees were sponsored in these programs, during 2004. (*See ORGANIZATIONAL CULTURE, Personal Development and Retention, which follows in this Section of the Journal for further information*.)

Cultural Diversity, Orientation, and Recognition Activities, Strengthened by the Timely Sharing of Information. During 2004, the USU Equal Employment Opportunity (EEO) Special Emphasis Program offered two major events to reinforce both the understanding of, and the appreciation for, the cultural diversity that exists, throughout USU. The events were attended by over 500 members of the USU community. Since October of 2000 through 2004, USU has provided formal sessions of the USU Orientation Program to 535 in-coming civilian and uniformed members of the USU community; 122 employees attended four sessions held, during 2004. To date, the USU President has personally presented service awards to 236 designated employees at their work sites; and, the Office of Military Personnel approved, processed and presented 71 awards for the USU military personnel, during 2004. In addition, the 2003/4 Edition of the USU Journal, the *USU Cost Avoidance Fact Sheet*, the *USU Briefing Paper* summarizing the current USU Journal, and on-going issues of USU Medicine have communicated the personal and group accomplishments and efforts of the USU community via hard copies, web sites, and CD-ROMs. (*See ORGANIZATIONAL CULTURE, Communicating Equal Opportunity Principles and Appreciation of Diversity, in this Section of the Journal for further information*.)

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<u>OBJECTIVE</u> - USU will work to ensure that all USU initiatives and activities are characterized by the principles of ethics and accountability.

<u>Cost-Avoidance Generated for the Department of Defense and the USU Ethics Program Ensure Accountability and Ethical Standards for USU.</u>

USU 2004 Fact Sheet on Cost Avoidance. A four-page USU Fact Sheet on Cost Avoidance has been documented and produced, since 1997. The Fact Sheet reflects an in-depth coordination effort led by the Vice President for Administration and Management with the School of Medicine (SOM) Clinical Departments, the USU Office of Continuing Education for Health Professionals (CHE), the USU Military Training Network (MTN), the SOM Office of Graduate Education, and the Graduate School of Nursing (GSN). Documentation was finalized, during May of 2004, to include four USU programs (***Clinical and Consultative Services - $16,094,907*** *- data is now available to show that the average number of hours of patient care and consultation provided each year is over 140,000 hours; 144 USU faculty members provided 147,301 hours, during 2004;* ***CHE - $4,769,942****; MTN - $11,372,044; and,* ***Graduate Education - $1,340,000***), which validated that **$33.6 million of cost-avoidance** was generated by USU for the Department of Defense, during 2004. This self-reporting survey has become increasingly important in USU's on-going effort to document its significant products and services. (*This subject is discussed in more detail under OPTIMIZATION, which follows in this section of the USU Journal*.)

<u>Office of Government Ethics Review Finds USU Ethics Program Provides Quality Advice and Counseling Services.</u> The Office of Government Ethics conducts periodic program reviews to evaluate agency ethics programs throughout the Executive Branch of the Federal Government. These reviews are conducted to ensure compliance with *Standards of Ethical Conduct for Employees of the Executive Branch*. The USU Ethics Program was reviewed, in the Fall of 2002, and a report was issued on December 10, 2002. The report highlighted that the University... ***continues to operate a strong and meaningful ethics program*** and provides... ***high quality advice and counseling services***. The report concluded... ***we are pleased to report that the University's Ethics Program continues to comply with applicable ethics laws and regulations***. There were no recommendations for improvement of the USU Ethics Program. On December 13, 2002, the Office of Government Ethics issued an electronic newsletter, which read in part... ***the University, Congressionally established to train men and women for careers as medical officers in the military services and Public Health Service, faces unique ethics challenges, which it successfully addresses***. The USU Ethics Program continued its activities and support functions, throughout 2004.

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RELEVANCE - MISSION ACCOMPLISHMENT

USU Graduates Provide Continuity and Leadership and Ensure Medical Readiness.

The School of Medicine. ***Continuity and leadership ensure both readiness and the preservation of lessons learned during combat and casualty care***; these were significant factors that motivated the Congress of the United States and the Executive Office of the President to recommend and approve the establishment of USU and the Health Professions Scholarship Program (HPSP) as complementary sources of accession for uniformed physicians. In 1972, Public Law 92-426, *the Uniformed Services Health Professions Revitalization Act*, established the HPSP to be a flexible source for the quantity of physicians required by the Armed Forces; and, ***USU was established to provide a cadre of military medical officers who would serve a career as active duty physicians and effectively ensure continuity and leadership for the MHS.***

***Reliability and Sustainability of Accession Sources*: Of current accession programs, USUHS is the most reliable and cost-effective for filling senior leader requirements. USUHS currently provides 23 % of all active duty physicians. Removing USUHS as an accession source introduces significant risk of physician shortfalls. Accessions from the Health Professions Scholarship Program (HPSP) alone are an unproven source for proper design and mix of the medical force structure. Congress and DoD created the current integrated and complementary triad of physician accession sources to provide the numbers, required specialties and experience (rank) required to meet MHS missions. The HPSP provides the bulk of the required physicians of lower rank and experience, only 5 % of which remain on active duty beyond their initial obligation. USUHS provides a stable cadre of career military physicians and other healthcare professionals in all specialties.**

***Potential Risk of Change*: Absent any one of the three accession sources, it is unlikely that the remaining two can support an all-volunteer military medical force. CNA** (Center for Navy Analysis) **estimates that it would require at least 895 additional HPSP accessions annually to replace the current 165 USUHS graduates. This may not be feasible in today's environment for medical school applicants. Currently, there is a general decline in the number of U.S. medical school applications, an increase in the number of female applicants (who generally have less or little long term interest in military service), and a general decrease in medical students applying for HPSP scholarships** (currently less than one applicant for each HPSP slot)**. Additionally, current HPSP recruitment practice favors the accession of physicians less likely to specialize in meeting critical wartime requirements.**

***Retention*: USUHS graduate retention is greater than other sources. The USUHS Alumni represent approximately 13 % of new medical officer accessions, 23 % of the total medical officer force, and 33% of those in the ranks of 0-5 and 0-6. Reliance on other sources would require a larger recruitment pipeline (to ensure numbers and specialty mix), reduce assignment flexibility, and ultimately increase total system costs.**

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs,** Briefing on USU before OSD Leadership, April 18, 2005.

Continuity. With the graduation of the 25th School of Medicine (SOM) Class in May of 2004, 3,587 uniformed officers had been granted Medical Degrees. ***As of April 2005, the 2,607 USU physicians on active duty in the Armed Forces represented 22.7 percent (one out of every five) of the 11,495 physicians on active duty in the Army*** (*Total Army Physicians* - 4,140; *USU Army Physicians* - 1,035)***, Navy*** (*Total Navy Physicians* - 3,855; *USU Navy Physicians* - 780)***, and Air Force*** (*Total Air Force Physicians* - 3,500; *USU Air Force Physicians* - 792); the congressional founders had hoped for a representation of ten percent. (In addition, there are 88 USU SOM alumni on active duty in the United States Public Health Service; therefore, ***as of April 2005***, a total of 2,695 USU SOM graduates remain on active duty.)

Leadership. Currently, ***25 percent of the Specialty Consultants to the Army, Navy and Air Force Surgeons General are USU alumni*** (44 of 176). As quoted above, from a recent briefing by the Assistant Secretary of Defense for Health Affairs, ***USU alumni represent 33 percent of those in the ranks of 0-5 and 0-6***. Examples of promotions to 0-6 during 2004 reflect the following: **Army -** ***35 percent of the Army medical corps officers selected for promotion to Colonel were USU SOM graduates***; **Navy -** There were 197 physicians considered for promotion to 0-6, in or above zone; overall, 28 physicians were selected for promotion. ***Of the 21 USU SOM Navy alumni considered for promotion, in or above zone, 6 were selected, resulting in a 28.6 percent selection rate*** (as compared to the 11.4 percent selection rate for the non-USU physicians being considered); **Air Force -** 45 physicians were selected for promotion to 0-6; ***the 17 USU SOM Air Force alumni selected for promotion represented 38 percent of those selected for promotion***. (*See Section II, ACHIEVEMENTS OF THE SOM ALUMNI, for further examples of leadership*.)

Independent Studies Reflect that USU SOM Graduates Are the Most Cost-Effective Accession Source for Filling Senior Positions in the MHS and USU SOM Alumni Are Well Prepared for, and Succeed in, Operational and Leadership Positions. During 2003, the Center for Navy Analysis (CNA), conducted an in-depth study entitled, *Life-Cycle Costs of Selected Uniformed Health Professions*, part of which included the development of a Cost Model Methodology. In Phase II of the study, CNA used the cost and historical retention patterns from Phase I, in addition to current constraints and business practices. CNA, in its summary report of Phase II, page one, stated that ***USU is the most cost-effective accession source for filling 0-6 grade physician requirements***. This directly validates the September 1995 GAO Report, *Military Physicians - DoD's Medical School and Scholarship Program*, page 43, which states that ***43 out of 44 commanders of major military medical units perceived that physicians from the University have a greater overall understanding of the military, greater commitment to the military, better preparation for operational assignments, and better preparation for leadership roles***.

On March 15, 2005, CNA reported to the Assistant Secretary of Defense, Health Affairs, in ***Life-Cycle-Cost Model Excursions Related to USUHS***, that when they used a model "*with no USUHS accessions and the same experience minimum requirements as the baseline, the model brings in an excess of 2,919 HPSP physicians in an attempt to fill the seniority requirements. Obviously, this is not feasible in execution, but it demonstrates the difficulty of filling seniority requirements without an accession source like USUHS*." ***CNA estimates that it would require at least 895 additional HPSP accessions annually to replace the current 165 USUHS graduates. This is not feasible in today's environment for medical school applicants***; currently, there is only one applicant for each HPSP slot. Without a doubt, the continuity and leadership, provided by the USU SOM alumni, ensure medical readiness and the preservation of lessons learned for the MHS.

***Medical Readiness*.**

***Support to Military Operations*: The need for USUHS as a guaranteed and proven source for the right physician leaders will be even more important as DoD fights future wars. Because of their selection and subsequent training, USUHS graduates seek assignment to operational units in large numbers (51 % of medical officers assigned to Army Special Forces are USUHS graduates). These core competencies have value not only for our military operational mission but also in DoD's support for Homeland Security. Refereed publications report that USUHS is the premier source of training for readiness, contingencies, community and public health, and other mission imperatives.**

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs,** Briefing on USU before OSD Leadership, April 18, 2005.

The Secretary of Defense refers to the USUHS graduates as the "*backbone*" of the Military Health System (MHS) and he has officially recognized that USUHS academic centers and research programs have established international credibility for: military unique medical expertise; communication and assessment of military medical humanitarian assistance training; addressing traumatic stress in uniformed and civilian health care communities; and, developing radiological countermeasures and unique training for the response to radiological emergencies.

- **The Military Coalition (*35 Associations and Organizations*),** Letter to the Under Secretary of Defense for Personnel and Readiness, April 13, 2005.

USU is the Nation's only University dedicated to ensure medical readiness for the MHS. In the December issues of both 1998 and 2001, the Association of American Medical Colleges (AAMC) Reporter recognized USU as the ***one place where the physicians of tomorrow do get thorough preparation to deal with the medical aspects of chemical and biological terrorism. USU students learn how nuclear, biological, and chemical agents act on the human body and what to do in the event of a suspected exposure - from detection to decontamination and medical countermeasures*.** Recent verification also was provided on April 27, 2005, when **Jordan J. Cohen, M.D., President, Association of American Medical Colleges, wrote to the Deputy Secretary of Defense that *"At no other institution are medical students taught about the medical response to weapons of mass destruction. Only a handful of other medical schools offer courses in tropical medicine."***

The MHS must provide quality health care during humanitarian, civic assistance, or operational contingencies. This critical medical response requires that physicians in the MHS be provided a solid background in tropical medicine and hygiene, parasitology, and the use of epidemiologic methods and preventive medicine. USU students are provided with approximately 130 hours of study in these areas, compared to about 13 hours found in the typical civilian medical school curriculum. In addition, the multi-Service environment of USU facilitates the students' understanding of the cultures and vocabularies of the United States Army, Navy, Air Force, and Public Health Service, which ensures two of the essential

components of readiness: ***flexibility and continuity during joint service operational contingencies***. And, the USU SOM has implemented innovative efforts to meet the evolving requirements of medical readiness: the newly established National Capital Area Medical Simulation Center and the USU Patient Simulation Laboratory; the SOM Department of Biomedical Informatics; and, the recently established interdisciplinary graduate program, Emerging Infectious Diseases (*see Section II for a detailed description of these SOM programs*).

On May 6, 2005, **Michael D. Maves, M.D., M.B.A., Executive Vice President, CEO, The American Medical Association (AMA),** wrote to the Deputy Secretary of Defense that **"*The AMA vigorously supports the continuance of USUHS because we believe it is vital to the continued strength, morale, and operational readiness of the military services... In a time of widely-held fears of a looming shortage of physicians and health care providers, this retention powerhouse*** (USUHS) ***is an increasingly valuable resource for the Military Health System and the nation*.**"

The Graduate School of Nursing.

The USUHS Graduate School of Nursing is also becoming the military's major source of advanced practice military nurse clinicians, nurse anesthetists, and nurse leaders prepared for deployment in direct support of combat operations. Agencies accrediting civilian academic health centers, schools of medicine, and graduate schools of nursing have consistently awarded USUHS accreditation *with distinction*.

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs,** Briefing on USU before OSD Leadership, April 18, 2005.

In 1993, Congress directed the initiation of a demonstration program for the preparation of family nurse practitioners to meet the needs of the Uniformed Services. In the short time since its establishment, the USU Graduate School of Nursing (GSN), with the strong cooperation and support of the Federal Nursing Chiefs, has: 1) recruited a qualified faculty; 2) successfully established curricula for the Family Nurse Practitioner, Nurse Anesthesia, and Perioperative Clinical Nurse Specialist options in its Master of Science in Nursing (MSN) Program; 3) identified accredited clinical practice sites and completed memoranda of understanding (MOUs) for those relationships with 21 military treatment facilities, to include an additional 111 non-DoD, Federal, and civilian clinical sites; 4) developed and implemented an administrative structure that provides for faculty and student participation in the overall governance of the GSN; 5) submitted self-studies and received maximum terms of accreditation, with commendation, for its MSN Degree Program from its three professional accrediting entities; 6) received formal approval from Health Affairs, Office of the Secretary of Defense, as a permanently funded DoD Program on February 26, 1996; 7) initiated, implemented, and continuously reviewed the outcomes evaluation process for its academic program (*of the 103 Family Nurse Practitioner (FNP) graduates, all have passed their certification examination, with 100 doing so on their first attempt; thus, **the GSN FNP graduates have a 97 percent first attempt pass rate**; twelve of the seventeen graduates from the GSN Nurse Anesthesia Program and the Navy Nurse Corps Anesthesia Program, Class of 2004, who took the certification examination for nurse anesthetists scored the maximum possible score of 600; **the average score of the GSN NA Class of 2004 was 596.2, well above***

the national average, which was 551.5); 8) collaborated with the Department of Veterans Affairs and utilized state-of-the-art technology to establish distance learning options (*resulting in the DoD's first virtual graduation at the advanced level and a total of 70 virtual graduates*); 9) established a Doctoral Program in Nursing Sciences with the enrollment of its Charter Class in the Fall of 2003; and, 10) as of April 2005, granted Masters of Science in Nursing Degrees to 231 advanced practice nurses (*including 7 MSNs granted through distance learning*) with over 80 percent of its graduates remaining on active duty. The GSN has gained recognition as the first advanced practice nursing school in the United States to serve the Uniformed Services with a clear mission of ***Learning to Care for Those in Harm's Way***.

Advanced Degrees Earned Through Distance Learning. The GSN has enjoyed an on-going, successful eight-year collaborative relationship with the Department of Veterans Affairs (VA). The 20-month VA/DoD Distance Learning Program has been recognized as a model for cost-effective collaboration. ***At its inception, it was the first program in the Nation to offer a complete nurse practitioner curriculum via distance education***. The collaborative efforts of the GSN with the VA in the area of distance learning successfully demonstrated a cost-effective form of advanced education where nursing students received advanced training in critically-required specialty areas, while maintaining their current positions at the VA medical centers. Twenty-six students, through a *virtual commencement exercise*, graduated from the VA/DoD Distance Learning Program on May 18, 1999; an additional student completed requirements during August of 1999, bringing the total to 27 graduates from the first class. The virtual graduation was broadcast from USU and linked with eight VA Medical Centers located across the United States. All graduates were eligible to sit for the American Nurses Association Credentialing Examination for Adult Nurse Practitioners. This graduation marked the first virtual advanced-level graduation for either the VA or DoD. Outcome data from present students, alumni, and employers reflect high levels of satisfaction with the distance learning program. A second class, with 33 students located in ten VA Medical Centers, graduated on May 15, 2001. And, a third class of ten students graduated on May 13, 2003. *To date, 70 individuals have successfully graduated from this exceptional distance learning program.* The program was halted following the third graduation because the VA had reached its target goal for Nurse Practitioners. To ensure that other Federal entities could easily access the lessons learned during this Program, a joint report was issued by the GSN and the VA Nursing Strategic Healthcare Group, in November of 2000. The report, *The VA/DoD Post-Master Adult Nurse Practitioner Distance Learning Program - From Concept to Graduation*, documents, in chronological order, the formulation of the partnership between the DoD and the VA, the conceptual stages and developmental processes, learning strategies, course evolvement, assessment methodologies, clinical experiences, and the transmission effectiveness for the entire program. Future initiatives between the GSN and the VA are being considered with an emphasis on improving nursing practice and health care for veterans, to include the newly established GSN Doctoral Degree Program. (*See Section III for a detailed description of this GSN program*.)

A Clinical Nurse Specialist Option is Established. The Federal Nursing Chiefs identified a need for a *Clinical Nurse Specialist (CNS) option in the GSN MSN Degree Program*, in June of 2001. The new program option was presented to, and favorably received by, the USU Executive Committee, in January of 2002; next, it was presented to the USU BOR and received formal approval, on February 27, 2002. The Perioperative Clinical Nurse Specialty (PCNS) option, within the GSN MSN Degree Program, began with the Class of 2005, which matriculated eight uniformed officers, in June of 2003; nine students entered the CNS option, in June of 2004.

A Doctoral Degree Program in Nursing Is Established. To meet the evolving requirement for nursing research relevant to the MHS, the United States Public Health Service (USPHS), and other Federal Health Systems, in March of 2002, with the approval of the Federal Nursing Chiefs, the GSN began the process for the development of a ***Doctoral Program in Nursing***. The Program's mission is to prepare nurses to be uniquely qualified as leaders in research, education, and clinical practice and to serve in the MHS, the USPHS, and other Federal Health Systems. Additionally, with the well-recognized national shortage of both staff nurses and nursing faculty, GSN doctoral graduates must be prepared to augment faculty requirements at educational organizations and to serve as researchers for studying health care in the MHS, USPHS, and other Federal Health Systems. *A Doctoral Program that has a focus on the MHS, as well as the USPHS and other Federal Health Systems, is not available at civilian universities; no other institution is better positioned than the USU GSN to provide a Doctoral Program with such a unique focus.* The new program accommodates both full-time and part-time students and will incorporate aspects of both distance and alternative learning. *The GSN welcomed its Charter Class of three full-time and ten part-time students in the GSN Doctoral Program in June of 2003; twelve additional students (four full-time and eight part-time) were enrolled, in 2004.*

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In Addition to the SOM and GSN Alumni and Achievements, Five Other OSD-Recognized, Significant Areas of Support and Products Are Provided by USU for the MHS.

Clinical Support for the Military Health System. *As reported in the 2004 USU Cost Avoidance Fact Sheet*, during their course of teaching, 144 USU faculty members (92 uniformed; 52 civilians) provided over 147,301 hours of clinical care at the Army, Navy, and Air Force Medical Treatment Facilities (MTFs) in the National Capital Area. Without this significant provision of support during 2004, the MTFs would have had to augment their medical staffs by 147,301 work hours in order to maintain the level of patient care within the direct care system of the MHS.

The USU SOM Graduate Education Programs. ***As of April 2005, the SOM Graduate Degree Programs have conferred a total of 845 advanced degrees*:** 251 Doctors of Philosophy; 15 Doctors of Public Health; 82 Masters of Science; 457 Masters of Public Health; 8 Masters of Science in Public Health; 28 Masters of Tropical Medicine and Hygiene; and, 4 Masters of Military Medical History. ***As reported in the 2004 USU Cost Avoidance Fact Sheet, 38 uniformed officers received advanced degrees*** (34 Masters Degrees and 4 Doctoral Degrees), ***during the May 2004 USU graduation***. The USU SOM Graduate Education Programs are responsive to the special needs of the Military Health System (*a detailed discussion on the superb responsiveness of the USU Graduate Education Programs is provided in Section IV of the Journal*).

The USU SOM Office of Graduate Medical Education. ***The USU Office of Graduate Medical Education*** (GME) provides essential support for the MHS in that it ***serves as the Administrative Office and provides oversight for the National Capital Consortium (NCC). The USU SOM Office of GME collects and evaluates data on DoD GME programs to ensure academic and scientific excellence; and, it provides consultation and advice for the Dean of the SOM, the President of USU, and others throughout the MHS on military-unique medical curricula***. During 2004, all of the GME programs in the National Capital Area were under the cost-effective sponsorship of the NCC, bringing the current total to 65 programs. The NCC,

by supplying leadership and resources, complies with the Accreditation Council for Graduate Medical Education (ACGME) institutional requirements and ensures that Consortium-sponsored programs comply with ACGME program requirements (*see Section V of the Journal for further information*).

The USU Office of Continuing Education for Health Professionals and the USU Military Training Network. The USU Office of Continuing Education for Health Professionals (CHE), to include the Military Training Network (MTN), provides significant, cost-effective and relevant support for the MHS by facilitating the continued professional growth of health care professionals, throughout the MHS. In carrying out its principal responsibilities, ***as reported in the 2004 USU Cost Avoidance Fact Sheet, CHE sponsored continuing medical education for 969 activities with an attendance of 7,409 physicians; provided continuing nursing education for 88 activities with an attendance of 2,532 nurses; approved 34 programs of Category II (non-ACHE) continuing education credit for 692 members of the American College of Healthcare Executives; provided eight continuing education activities for 72 psychologists; and, four activities for 101 social workers***.

The mission of the MTN is to develop and implement policy guidance and ensure compliance with curricular and administrative standards for resuscitative and trauma medicine training programs for the Uniformed Services and the DoD affiliates. The DoD sites affiliated with the USU MTN are approved to conduct self-sustained resuscitative and trauma medicine training; this continues to prove cost-effective for the MHS because it eliminates the need to pay premium training costs for civilian resuscitative and trauma medicine programs. ***As reported in the 2004 USU Cost Avoidance Fact Sheet, 205,709 DoD personnel were trained through the USU MTN*** (*see Section VI of the Journal for further information*).

USU Serves as the Academic Center for 2,416 Active-Duty Faculty in the MHS. USU serves as the Academic Center for academic and research activities for 2,416 active-duty, off-campus USU faculty located throughout the MHS. ***USU on-site faculty have sponsored, hosted, or participated in the major conferences held by the MHS, during 2004; in addition, military relevant consultation is continuously provided to the MHS and other Federal agencies by the internationally recognized experts within the University's multiple centers, departments, programs, and institutes***. As previously addressed under RESEARCH, the third goal of the USU Strategic Plan, *the military-relevant research conducted at USU, in collaboration with many hundreds of off-campus USU faculty assigned throughout the MHS, addresses critical issues for the Armed Forces*. The knowledge documented by the on-site and off-site USU faculty, through their collaborative research, is opening new avenues to: enhance the quality of clinical care; and, better control, diagnose, protect, and provide treatment for millions of MHS beneficiaries.

(***All of the products and services, described above, are resourced as part of the operating budget of the University and are discussed throughout this report***.)

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ACCREDITATION

In 2003, the University received the maximum term of ten years of accreditation with commendation from the Middle States Association on Higher Education.

- **The Honorable Daniel K. Inouye, United States Senator,** *Tribute to James A. Zimble, M.D.*, Congressional Record, July 6, 2004, page S7575.

The Middle States Association of Colleges and Schools.

Background. The University is accredited by the Middle States Association of Colleges and Schools Commission on Higher Education (MSA/CHE). The MSA/CHE is an institutional accrediting agency recognized by the United States Secretary of Education and the Commission on Recognition of Postsecondary Accreditation. Following its establishment in 1972, USU received *candidate for accreditation status* from the MSA/CHE, in 1977, and has retained accreditation, since 1984. In order to maintain the accreditation of the educational programs, within the School of Medicine and the Graduate School of Nursing, the University must receive accreditation from the MSA/CHE. Based upon the results of an institutional self-study and an evaluation by a team of peers and colleagues assigned by the MSA/CHE, accreditation attests to the judgment of the MSA/CHE that an institution has met the following criteria: it is guided by well-defined and appropriate goals; it has established conditions and procedures under which its goals can be realized; it is accomplishing its goals substantially; and, it meets the standards of the MSA/CHE.

In 1993, the University underwent a successful institutional self-study and a reaccreditation site visit by the MSA/CHE. As requested by the MSA/CHE, a Periodic Report was submitted by USU to the MSA/CHE, in June of 1998. In July of 1998, the MSA/CHE reported that the USU Periodic Report was... ***to be applauded for its serious and candid review of the areas of concerns pointed out by the Middle States Evaluation Team in 1993***. The MSA/CHE correspondence further emphasized that... ***it is clear that USUHS is responding to its internal and external environments and preparing aggressively for the future.*** On December 1, 1998, the USU President was notified by the MSA/CHE that the University had been granted accreditation, with no follow-up required. The next evaluation visit by the MSA/CHE was scheduled for the Spring of 2003.

Preparation for an Evaluation Visit. The MSA/CHE does not prescribe a particular institutional planning process. However, it does strongly suggest that planning be conducted within the context of the institution's goals, priorities, resources, and commitments. This means, at a minimum, that the institution has: carried out a thorough examination of its mission; reviewed its internal and external environments to form preliminary estimates of its strengths, weaknesses, opportunities, and threats; developed and implemented a formal system for setting priorities and for developing budgets, strategies, activities, and timetables; and, devised an evaluation procedure for systematically reviewing self-study planning, the self-study process, and self-study findings and recommendations. A steering committee must be established that is responsible for providing leadership to the entire self-study process, to include: determining the key issues for the self-study; preparing the design; developing charges to the subcommittees and coordinating their work on the various issues studied; ensuring that the timetable is implemented as planned; arranging

for one or more campus hearings to review drafts of the self-study; and, overseeing the completion of the final self-study report. In accordance with the above, the USU President established a steering committee to draft a self-study design proposal; the design proposal was submitted to the MSA/CHE staff liaison, in April of 2001, for review and approval. The MSA/CHE liaison visited the USU campus on May 18, 2001, and met with members of the USU administration, the Board of Regents, and students and faculty; the outcome of the visit was quite positive, with only one recommendation for USU on the inclusion of information on how outcomes assessment would be integrated into the self-study document. The self-study design was revised to include the MSA/CHE liaison's recommendation and received approval in August of 2001. During September of 2001, the University established fifteen self-study subcommittees. Draft reports were scheduled for submission to the steering committee, beginning in early February of 2002; subcommittee final reports were due to the steering committee in May of 2002. The steering committee reviewed and merged the subcommittee reports into one comprehensive report for the MSA/CHE. A draft of the comprehensive report was circulated to the University for review and comment. Revisions were incorporated, as appropriate, into the draft document by the steering committee prior to the final review by the Office of the USU President; copies were then submitted to the MSA/CHE. The submission of all required documents to the MSA/CHE was completed, during February of 2003.

A Middle States Evaluation Team Visits the University. Following the receipt and review of the USU Self-Study, an Evaluation Team representing the Middle States Commission on Higher Education visited the USU campus on March 30 - April 2, 2003. The Team indicated a positive review of the University upon the conclusion of their visit. ***On July 1, 2003, the University President was notified by the Middle States Commission on Higher Education that USU had received accreditation with commendation with the next self-study to be conducted during 2012-2013***.

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Fourteen Accrediting Entities Ensure that Educational Standards Are Met by the University. In addition to the MSA/CHE accreditation, the following thirteen professional organizations continue to authorize accreditation for the University's schools and programs:

SOM: 1) the Liaison Committee on Medical Education (LCME); 2) the Accreditation Council for Continuing Medical Education (ACCME); 3) the Council on Education for Public Health (CEPH); 4) the American Psychological Association (APA) Committee on Accreditation; 5) the Accreditation Board for Engineering and Technology (ABET);

GSN: (6) the National League for Nursing Accrediting Commission (NLNAC); 7) the Council on Accreditation of Nurse Anesthesia Programs (COA); 8) the American Association of Colleges of Nursing Commission on Collegiate Nursing Education (AACN/CCNE); and,

University: 9) the Nuclear Regulatory Commission (NRC); 10) the American Association for the Accreditation of Laboratory Animal Care (AAALAC); 11) the American Nurses Credentialing Center's Commission on Accreditation; 12) the American College of Healthcare Executives (ACHE); and, 13) the State of Maryland Department of Health and Mental Hygiene Board of Social Work Examiners.

(*Individual discussions on the accreditation of the School of Medicine, the Graduate School of Nursing, the Graduate Education Programs, the Graduate Medical Education Program, and the Office of Continuing Education for Health Professionals are provided in Sections II, III, IV, V, and VI of this report*.)

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OPTIMIZATION - OSD RECOGNITION OF USU's MULTIPLE PRODUCTS
TWO SIGNIFICANT OSD AWARDS
THE GENERATION OF COST-AVOIDANCE
CENTER OF NAVY ANALYSIS REPORTS

Thank you for your letter and the information on the Uniformed Services University of the Health Sciences (USUHS) as well as the 2002 Edition of the USU Journal. It is gratifying to see the University provide continuity and leadership for ensuring medical readiness. Alumni are highly trained and will no doubt continue their tradition of providing first-rate Military Health System support. The Cost Avoidance Fact Sheet is further evidence of your commitment and dedication... Please convey to Admiral Zimble my deep appreciation for the hard work he and the people of USUHS are doing for those of us in uniform.

- **General Richard B. Myers, Chairman of the Joint Chiefs of Staff,** Letter to USU, November 20, 2003.

OSD-Conducted Surveys Recognize USU's Academic Certification and Faculty Credentials. In mid-1997, Management Reform Memorandum 3, Office of the Secretary of Defense (OSD), called for a study of the educational and professional development programs sponsored by OSD. That study and the efforts of the Defense Reform Task Force led to the Defense Reform Initiative's decision to establish an office of the Chancellor for Education and Professional Development (*this office was later disestablished).* Throughout 1997 and 1998, the USU Vice President for Administration and Management (VAM) coordinated the University's participation in intensive surveys on streamlining education throughout DoD. The University provided inclusive responses to the Office of the Deputy Assistant Secretary for Civilian Personnel Policy; those responses included all of the services and products resourced by USU as part of its operating cost. ***The OSD-conducted surveys mark the first official OSD recognition of the multiple products of USU in addition to its medical school graduates.*** As a result of those surveys, and based on the average course length of the continuing education efforts of the University, OSD analysts identified approximately 188 student man years, *in addition to*, the 814 (as reported in November of 2003: SOM - 674; GSN - 66; Graduate Education - 74) uniformed students who are traditionally credited, each year, to USU.

During 1998, in response to DoD's Defense Reform Initiative Directive 41, a two-part survey on faculty credentials was conducted by the USU VAM. ***The Office of the Deputy Assistant Secretary for Civilian Personnel Policy concluded, as in August of 1997, that USU had the strongest academic certification and faculty credentials among all activities surveyed.***

USU Comprehensive Annual Faculty Listing Report. As part of an on-going process for sharing information with OSD reference the credentials of the USU faculty, the USU Vice President for Administration and Management coordinates and publishes a comprehensive Annual Faculty Listing Report. During November of each year, all full-time faculty members ***(329 full-time USU faculty during 2004 - 208 civilians; 121 uniformed officers)*** are counted in the totals of the Department where each holds his or her primary faculty appointment. Although it only captures a point in time, this annual report documents the unique and wide-reaching, collaborative relationships of the University with its off-campus faculty ***(3,999 off-campus faculty during 2004 - 1,583 civilians; 2,416 uniformed officers)***. Since the initial report completed in 1998, recommendations from the USU community have been incorporated so

that the following information is included within the annual report: 1) totals of full-time faculty (civilian and uniformed faculty members are identified by name); 2) the tabulation of academic titles, in accordance with USU Instruction 1100; 3) totals of part-time faculty (identified by name); 4) totals of off-campus faculty (civilian and uniformed off-campus faculty are identified and totaled by academic titles); and, 5) totals of civilian faculty with tenure or with tenure pending are identified by name. All of this information is broken out by Department or Activity; data are then combined and totaled for the School of Medicine or the Graduate School of Nursing; then, all totals are combined to form an inclusive summary for the University. A copy of the 2004 Annual Faculty Listing Report was provided on November 15, 2004, to the USU President, Deans, Department Chairs, Activity Heads, the USU Board of Regents (to include the Assistant Secretary of Defense for Health Affairs), and the USU Executive Committee (the Surgeons General and their staffs).

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Two Significant OSD Awards Recognize the Multiple Products of USU. ***The OSD Joint Meritorious Unit Award Recognizes the Multiple Products of USU***. On December 11, 2000, the Secretary of Defense awarded the Joint Meritorious Unit Award to the University. ***This significant award documents OSD's recognition of the essential mission, exceptional service over the past decade, and the multiple cost-effective programs of USU*** (the SOM, the GSN, Graduate Education Programs, Graduate Medical Education, Continuing Education for Health Professionals, the Military Training Network, Clinical Support for the MTFs, etc.). Public Law 92-426, *the Uniformed Services Health Professions Revitalization Act of 1972*, mandated that the University should meet the special needs of the Military Health System (MHS) through the provision of uniquely trained, career physician officers who would ensure continuity and leadership for the MHS. As validated by the Secretary of Defense in the citation for the Joint Meritorious Unit Award, the University has exceeded the goals set by the early visionaries who established USU.

On August 2, 2004, ***the prestigious DoD Medal for Distinguished Civilian Service*** was presented to the USU President on behalf of the Secretary of Defense. The DoD Medal for Distinguished Civilian Service is presented quite rarely by the Secretary of Defense and reflects significant recognition for the entire University. As with the Joint Meritorious Unit Award, ***the DoD Medal for Distinguished Civilian Service recognized the multiple products of USU and the cost avoidance generated for DoD by USU*** through the provision of Clinical and Consultative Support in the Military Treatment Facilities, the USU Office of Continuing Education for Health Professionals, the Military Training Network, and the USU Graduate Education Programs.

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In addition to the Multiple Products and Services of USU, Four USU Programs Generated 33.6 Million Dollars of Cost-Avoidance, during 2004, for the Military Health System. Critical to the University's efforts for optimization, the Middle States Association of Colleges and Schools Commission on Higher Education has granted accreditation to USU, from 1984 through 2013. This essential accreditation, with commendation, has enabled the University to support and generate cost avoidance for the MHS through its multiple educational programs, all of which are accredited by a total of thirteen independent accrediting entities, in addition to the Middle States Commission on Higher Education. In meeting the mandates of its establishing legislation and the standards for accreditation as an academic institution, ***USU provides multiple services and products for the Military Health System (MHS), all of which are recognized by the Office of the Secretary of Defense.***

The Alumni of the USU School of Medicine. (***Stated totals are effective through April of 2005***.) The principal product of USU continues to be its 3,587 USU SOM uniquely trained, career-oriented physicians who are prepared to practice military medicine in the multi-Service environment of USU; and, as a result, USU ensures continuity and leadership for the MHS; ***the 2,607 USU SOM alumni on active duty in the Armed Forces represent 22.7 percent of the 11,495 physicians on active duty in the MHS*** (the Army has a total of 4,140 physicians on active duty, of which, 1,035 are USU graduates; the Navy has a total of 3,855 physicians, of which, 780 are USU graduates; and, the Air Force has a total of 3,500 physicians, of which, 792 are USU graduates). In addition, 88 USU SOM alumni continue to serve on active duty in the United States Public Health Service, for a total of 2,695 USU SOM alumni who continue to serve their Nation in the Uniformed Services. The USU SOM graduates average over 20 years of active duty service. Overall the median length of non-obligated service for physician specialists in the MHS averages only 4.4 years. That average drops to 2.9 years when USU graduates are excluded; ***the median length of non-obligated service as a specialist for USU graduates is 9 years*** (***or three times longer than the other physician accession sources***).

The Graduate School of Nursing. ***As of April 2005***, the fully accredited USU Graduate School of Nursing (GSN) has provided 231 Masters of Science in Nursing Degrees to advanced practice nurse graduates through its MSN Program options: the Family Nurse Practitioner option has 103 graduates; the Certified Registered Nurse Anesthesia has 121 graduates; and, the GSN Master Completion option has had a total of 7 graduates. Over 80 percent of the GSN graduates remain on active duty. ***As of April 2005, all 231 GSN graduates have passed their certification examinations with greater than a 97 percent pass rate on the first attempt***; during 2002, at the request of the Federal Nursing Chiefs, the GSN developed and received approval, from the USU Executive Committee and the USU Board of Regents, to implement a Doctoral Degree Program in Nursing and a Perioperative Clinical Nurse Specialist (CNS) option in the MSN Degree Program; students matriculated into both programs, during 2003. The CNS option projects to graduate its Charter Class of eight students, during the May 2005 graduation.

Clinical Services Provided by USU/SOM/GSN on-site Faculty. In 2004, during their course of teaching, 144 USU faculty members (92 uniformed; 52 civilians) provided over 147,301 hours of clinical care at the Army, Navy, and Air Force Medical Treatment Facilities (MTFs) in the National Capital Area. ***As reported in the 2004 USU Cost Avoidance Fact Sheet, the annual, manpower cost avoidance generated by the USU faculty through this clinical support (147,301 hours) was conservatively estimated at $16,094,907***.

The SOM Graduate Education Programs. ***As of April 2005***, the SOM Graduate Degree Programs have conferred a total of 845 Advanced Degrees: 251 Doctors of Philosophy; 15 Doctors of Public Health; 82 Masters of Science; 457 Masters of Public Health; 8 Masters of Science in Public Health; 28 Masters of Tropical Medicine & Hygiene; and, 4 Masters of Military Medical History. ***The annual cost avoidance generated by the USU SOM Graduate Education Programs for the MHS, as reported in the 2004 USU Cost Avoidance Fact Sheet, through the conferring of advanced degrees upon 38 uniformed officers (34 Masters Degrees and 4 Doctoral Degrees), was estimated at $1,340,000***.

The USU Office of Continuing Education for Health Professionals and the Military Training Network. The USU Office of Continuing Education for Health Professionals (CHE), to include the Military Training Network (MTN), provides significant, cost-effective support for the MHS by facilitating

the continued professional growth of health care professionals, throughout the MHS. ***As reported in the 2004 USU Cost Avoidance Fact Sheet, because CHE and MTN bring training to the military health care providers, an annual, estimated cost-avoidance of $16,141,986 was generated, during 2004, for the MHS***.

The SOM Office of Graduate Medical Education. ***The USU Office of Graduate Medical Education (GME) provides cost-effective support for the MHS in that it: serves as the Administrative Office and provides oversight for the National Capital Consortium (NCC); collects and evaluates data on DoD GME programs to ensure academic and scientific excellence; and, provides consultation and advice for the Dean of the SOM, the President of USU, and others on military-unique medical curricula.*** During 2004, all of the 65 GME programs in the National Capital Area were under the sponsorship of the NCC.

USU Serves as the Academic Center for the MHS. During 2004, USU continued to serve as the Academic Center for academic and research activities for 2,416 active-duty, off-campus USU faculty located throughout the MHS; USU on-site faculty have sponsored, hosted, or participated in the major conferences held by the MHS; in addition, military relevant consultation is continuously provided to the MHS and other Federal agencies by the internationally recognized experts within the University's multiple centers, departments, programs, and institutes. As addressed in this Section of the Journal, ***the military-relevant research conducted at USU, in collaboration with many hundreds of off-campus USU faculty assigned throughout the MHS, addresses critical issues for the Armed Forces***. The knowledge documented by the on-site and off-site USU faculty through their collaborative research is opening new avenues to: enhance the quality of clinical care; and, better control, diagnose, protect, and provide treatment for millions of MHS beneficiaries.

(*All of these products and services are resourced as part of the operating cost of the University and are discussed and documented throughout the USU Journal*.)

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Three Independent Reports by the Center for Navy Analysis on Retention and Cost-Effectiveness Recognize the Critical Requirement for USU SOM Graduates. An example of the critical role of USU SOM graduates in the MHS was reported, during February of 2001, when the Center for Navy Analysis (CNA) provided data on medical retention to the Navy Surgeon General for use in his response to the Senate Appropriations Committee. The Navy Surgeon General informed the Congressional Committee that his most undermanned specialties were general surgery and all surgical subspecialties, orthopedic surgery, diagnostic radiology, anesthesiology, and urology. Many of these specialties are critical wartime specialties and shortfalls could have a negative impact on medical readiness. The Navy response stated the following... ***Overall, the median length of non-obligated service for physician specialists averages only 4.4 years. That average drops to 2.9 years when USU graduates are excluded; the median length of non-obligated service as a specialist for USU graduates is 9 years.***

In April of 2003, CNA released *Phase II: The Impact of Constraints and Policies on the Optimal-Mix-of-Accession Model* from its major study, *Life-Cycle Costs of Selected Uniformed Health Professions*. The second of six major CNA findings states... ***Policy-makers need to consider the costs and benefits***

for each accession source. For example, even though USUHS accessions are the most costly (when including all Federal costs, a 1995 General Accounting Report (GAO) found that USU and HPSP Scholarship graduates are comparable in cost)***, their better retention makes USUHS the most cost-effective accession source for filling 0-6 grade requirements in the MHS***. Thus the outstanding retention rates of USU SOM graduates ensure that critical wartime specialties are filled; medical readiness requires the continuity and leadership provided by the USU SOM alumni.

On March 15, 2005, CNA reported to the Assistant Secretary of Defense, Health Affairs, in *Life-Cycle-Cost Model Excursions Related to USUHS*, that when they used a model "***with no USUHS accessions and the same experience minimum requirements as the baseline, the model brings in an excess of 2,919 HPSP physicians in an attempt to fill the seniority requirements. Obviously, this is not feasible in execution, but it demonstrates the difficulty of filling seniority requirements without an accession source like USUHS***." CNA estimates that it would require at least 895 additional HPSP accessions annually to replace the current 165 USUHS graduates. This is not feasible in today's environment for medical school applicants; currently, there is only one applicant for each HPSP slot. Without a doubt, the continuity and leadership provided by the USU SOM alumni cost-effectively ensure medical readiness and the preservation of lessons learned for the MHS.

Summary. The strengthened relationship of the University with OSD <u>and</u> OSD's recognition of the numerous cost-effective programs of USU is documented by the following:

1) The OSD surveys of 1997 and 1998, which officially recognize the multiple products, academic certification, and faculty credentials of USU;

2) the awarding of the Joint Meritorious Unit Award and the DoD Medal for Distinguished Civilian Service by the Secretary of Defense; both awards specifically recognize the multiple, cost-effective programs of USU;

3) the cost-avoidance generated by the University for DoD, during 2004 (estimated at $33.6 million); and,

4) the three independent reports by the Center for Navy Analysis (CNA), which document both the outstanding retention rates of the USU SOM graduates and the resulting cost-effectiveness of utilizing USU alumni to fill leadership positions, throughout the MHS.

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ACADEMIC CENTER FOR THE MILITARY HEALTH SYSTEM

Research conducted at USUHS was recognized in Science as one of the top ten scientific breakthroughs of 2002. In 2003, the University received the maximum term of ten years of accreditation with commendation from the Middle States Commission on Higher Education. Today, the USUHS School of Medicine Graduate Education Programs in Public Health rank sixth in the Nation according to U.S. News & World Report's *2004 Rankings of America's Best Graduate Schools* on the list of the top 10 community health master or doctoral programs (*since this tribute, USUHS has received the same rating in the 2005 and 2006 Rankings of America's Best Graduate Schools*)**. The American Medical Association has recognized that USUHS not only educates its own graduates, but also provides a significant national service through its continuing medical education courses for military physicians in combat casualty care, tropical medicine, combat stress, disaster medicine, and medical responses to terrorism, courses not available through civilian medical schools. Significantly, the Emerging Infectious Diseases Graduate Education Program provides courses on the agents and effects of bioterrorism and is the only graduate program in the Nation to offer formal training in these critical areas. *Over the past 13 years, USUHS has gained recognition and evolved into the Academic Center for Military Medicine.***

- **The Honorable Daniel K. Inouye, United States Senator,** *Tribute to James A. Zimble, M.D.*, Congressional Record, July 6, 2004, page S7575.

Active-Duty, Off-Campus USU Faculty Total 2,416. Multiple USU academic and research activities contribute to the medical knowledge and technology base available to the MHS. During 2004, 2,416 active-duty, off-campus USU faculty members, throughout the MHS, collaborated with the University through academic and research efforts. ***Through these collaborative efforts, USU serves as the Academic Center for those military medical officers and health care providers who seek to advance their military careers and their knowledge of uniformed health care.*** For their valuable service to the University, these active duty, off-campus faculty members are awarded appropriate academic rank. **This section provides selected examples of military relevant conferences or academic activities sponsored by, or collaborated with, the University; all of which document why USU is serving as the Academic Center for Military Medicine.**

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Activities of The Center for the Study of Traumatic Stress, USU SOM Department of Psychiatry. The USU SOM Center for the Study of Traumatic Stress, CSTS, established in 1987, is continuously sought out, both nationally and internationally, for its consultative, educational, and research capabilities in the area of traumatic stress. Ten major projects were funded, during 2004, with over seven million dollars, from the following sources: 1) the Department of the Army; 2) the National Institute of Mental Health; 3) the National Alliance for Research on Schizophrenia and Depression; 4) the National Alliance for the Mentally Ill Research Institute; 5) the National Institute on Drug Abuse; 6) the Substance Abuse and Mental Health Services Administration of the Department of Health and Human Services; 7) the Stanley Foundation; and, 8) the United States Marine Corps. During the past year, the CSTS continued to conduct research on the neurobiology of traumatic stress and the psychological and behavioral responses

to such events as the on-going war in Iraq and natural disasters, to include the Tsunami of December 2004 and recent hurricanes. Of significant note, the Director of the CSTS, **Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry, Director, USU Center for the Study of Traumatic Stress,** served on the Institute of Medicine Committee on Responding to the Psychological Consequences of Terrorism. ***His military unique expertise was instrumental in developing and advancing a national strategy that integrates mental health into a public health paradigm for terrorism management and response.*** This new model is of substantial consequence as it demonstrates how *disaster psychiatry*, a singular specialty significantly contributed to by the forging of military medicine and USU faculty health care leaders in the 1980's, has become recognized, valued and regarded as an integral component for strengthening homeland security in this Century. The Committee's recommendations have been published in Preparing for the Psychological Consequences of Terrorism: A Public Health Strategy, the National Academies Press, Washington, D.C., 2003.

Practice Guidelines Developed for the American Psychiatric Association. The CSTS Director also chaired the American Psychiatric Association (APA) Work Group on Acute Stress Disorder and Post Traumatic Stress, which published the 13th APA practice guideline, ***Practice Guideline for the Treatment of Patients with Acute Stress Disorder and Posttraumatic Stress Disorder***, in November of 2004. With the present concerns of the Nation over terrorism and the need for all clinicians to be able to help those who experience the ravages of a motor vehicle accident, a rape, or a war, this guideline can assure practitioners that they are using the best possible treatment for their patients.

Just-In-Time Training for Tsunami Responders. Recognition of the stature of the CSTS also occurred during the international response to the Tsunami Disaster, in January of 2005. ***The CSTS offered Just-in-Time Training to field workers and teams deploying on a variety of missions including the Center for Disease Control's Morgue Mission in support of body recovery following the Tsunami Disaster.*** In February of 2005, the CSTS also trained health care providers and scientists volunteering for PROJECT HOPE on the *UNS MERCY*, a 1,000-bed hospital ship traveling to the Tsunami-impacted nations. The CSTS team of scientists produced valuable ***Fact Sheets***, which were posted on the CSTS website for worldwide dissemination. A ***Push-Pack*** of educational materials was written and assembled in response to the Tsunami, which included up-to-date information on the health risks of body recovery, mitigation of psychological stressors for body handlers, grief leadership, and the unique circumstances of missing and unrecovered remains for family and loved ones, to include complicated bereavement. ***These definitive information and practical knowledge resources were provided to psychiatrists and mental health workers in Sri Lanka, Norwegian and Scandinavian Government Teams working with families whose relatives were dead or missing, Australian Trauma Teams, and international academicians in the field of trauma and disaster.***

Consultation for Medical Providers of Prisoners of War. Throughout 2004, **Lieutenant Colonel David M. Benedek, MC, USA, Associate Professor, USU SOM Department of Psychiatry, CSTS Scientist,** and **Colonel Elspeth Cameron Ritchie, MC, USA, CSTS Military Disaster Psychiatry Fellow,** provided *on-the-ground* consultation to Mental Health Assessment Teams (MHAT) deployed to Iraq. At the request of the Surgeon General of the Army, in September of 2004, LTC Benedek travelled to Iraq to ***provide recommendations for medical and mental health care for persons detained by the United States in the Global War on Terror***. In addition to specific recommendations for medical and mental health treatment and staffing in military detention facilities, ***his efforts strengthened a consultative relationship between medical personnel in the combat theater and psychiatric consultants at USU***. He also participated

in efforts to enhance the Ethics Training Program for troops preparing to deploy as medical providers for Prisoners of War and other detainees.

A Workshop on War Psychiatry Today. On July 12-13, 2004, CSTS faculty led by **Colonel Molly J. Hall, USAF, MC, Associate Professor, USU SOM Department of Psychiatry,** and **Carol S. Fullerton, Ph.D., Research Professor, USU SOM Department of Psychiatry,** convened a workshop on ***War Psychiatry Today: From the Battlefield to the Homefront*** (*Lessons from Operation Enduring Freedom and Operation Iraqi Freedom*). The workshop examined the experience and preparation of military physicians for combat support in the Global War on Terror. Workshop goals were to identify gaps in current medical training in order to: 1) better prepare physicians to provide appropriate mental health care in light of the complexities posed by modern warfare; 2) understand the new challenges that modern warfare places on psychiatrists at all levels of care, from the combat zone through the return to the United States; and, 3) define needs for mental health support in the rehabilitation and reintegration of the wounded back into their units and society. ***Twenty-one distinguished speakers from the uniformed and civilian health care communities presented during the two-day workshop; attendees represented 49 uniformed and civilian health-related organizations*** to include: the Offices of the Surgeons General; the Walter Reed Army Medical Center; Wright Patterson Air Force Base; the Executive Director, TRICARE - Europe; the University of Oslo, Norway; the VA Pudget Sound Health Care System; the United States Department of Veterans Affairs; Health Affairs; the Pentagon DiLorenzo TRICARE Health Clinic; Tripler Army Medical Center; Wilford Hall USAF Medical Center; and, the Blanchfield Army Community Hospital, in Kentucky. The conference was attended by consultants to the Surgeons General, operational experts, and those who had recently returned from deployment, in Iraq and Afghanistan. The resulting recommendations provide a clear road map for psychiatric educators of military and combat psychiatry for medical school and postgraduate training, to include residency, fellowship, and continuing education. CSTS has already begun to implement these recommendations, both at the USU SOM and its residency program, as part of its work with the Services to meet doctrine and continuing education requirements. ***This educational activity reflects CSTS' on-going commitment to training future medical officers who will lead the Uniformed Services Medical Corps and care for those in harm's way, in accordance with the USU mission and strategic plan.***

CSTS Electronic Health Promotion Campaign Featured by the National Media. USU's electronic health promotion campaign, ***Courage to Care***, located at <*www.usuhs.mil/psy/courage.html*>, was launched, during 2004. This health information campaign was developed by USU military health experts: **Captain Derrick A. Hamaoka, USAF, MC, Instructor, USU SOM Department of Psychiatry**; **Lieutenant Colonel David M. Benedek, MC, USA, USU SOM Department of Psychiatry**; **Colonel Molly J. Hall, USAF, MC, Associate Professor, USU SOM Department of Psychiatry**; **James E. McCarroll, Ph.D., Research Professor**; and, **Ms. Nancy Vineburgh, Director, CSTS Office of Public Education and Preparedness**. The campaign serves the Nation's Active Duty, Guard and Reserve Components, their families, and health care professionals serving the military community and the Nation. Fact sheets, which include such topics as ***Reintegration:*** *Becoming a Couple Again*; ***Caring for Children During Flu Season***; and, ***Psychological First Aid:*** *Helping Victims in the Immediate Aftermath of a Disaster*, were electronically published and distributed throughout the Department of Defense and civilian academic centers. The program's timely, relevant, attractively packaged information has been recognized and widely applauded at all levels, from senior commanding officers to the spouses of junior enlisted service members. The program has also been widely featured in the national media. (*See Section II, RESEARCH CENTERS AND PROGRAMS and STRATEGIC GOALS in Section I, for additional contributions of the CSTS, during 2004*.)

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Activities of the Center for Disaster and Humanitarian Assistance Medicine (CDHAM), USU School of Medicine, Department of Military and Emergency Medicine. The mission of CDHAM is to advance the understanding and delivery of disaster medical care and humanitarian assistance on a worldwide basis. Uniquely positioned as an academic center within the USU, CDHAM has served as a focal point in the Military Health System (MHS) to: ***1)*** develop relationships between various governmental, non-governmental (NGOs), and private volunteer organizations (PVOs); ***2)*** assist in the critical management of relief efforts in the medical response to weapons of mass destruction (WMD), terrorism, natural disasters, and humanitarian assistance contingencies through new developments in the areas of disaster and humanitarian assistance medicine (i.e., training in ultrasound imaging for disaster needs and assessment); and, ***3)*** augment the training of military medical officers through specialized expertise, consultation, training in the field of telemedicine, and medical informatics in relation to the austere environment, education, and research capabilities. ***CDHAM uses training, technology, and best management practices to improve military medical capabilities and readiness, during disaster and humanitarian contingencies, especially through collaboration with the inter-agency process, the international medical community, and the host nation medical infrastructure and beneficiary populations*.** CDHAM works closely with the Unified Combatant Commanders to meet its primary mission. In conducting studies and operations concerning local and global relief efforts, the CDHAM also works to expand relationships with other United States government agencies such as the United States Agency for International Development and the Office of Foreign Disaster Assistance, as well as international organizations such as the Pan American Health Organization/World Health Organization, and umbrella Non-Governmental Organizations, to include INTERACTION. **Kevin S. Yeskey, M.D., Associate Professor, USU SOM Department of Military and Emergency Medicine,** serves as the Director of CDHAM.

After Action Reporting System. Studies and Evaluation funding is utilized by CDHAM to advance defined, specific methodologies in operational humanitarian assistance/disaster response settings and to permit the continued organization and access of information obtained from such activities. ***CDHAM's After Action Reporting (AAR) Project stems from a study published for the Assistant Secretary of Defense, Special Operations for Low-Intensity Conflict, to evaluate measures of effectiveness for humanitarian assistance and disaster relief activities*.** While most organizations require some type of after action reporting, procedures to collect the information are not standardized. Also, retrieving reports is routinely complicated by problems in identifying the office primarily responsible for, or the location of, archived reports. To address these, and other shortfalls, CDHAM held discussions with software developers and had follow-on conferences to evaluate the means to better define the deliverable. CDHAM identified a software platform and established the necessary fields/elements for the system. The next phase of the project will be to develop the AAR software and pilot a validation study of the process(es). ***CDHAM will fund the start-up costs and invite Service participation in the utilization of the AAR system*.** As reports are posted, an analysis will be conducted by CDHAM to compare the system to existing report methodologies. It is anticipated that there are numerous potential end-users in the civilian and uniformed humanitarian assistance/disaster response (HA/DR) communities. The need to measure and improve the effectiveness of humanitarian assistance programs is widely recognized by the Unified Combatant Commands, therefore, multiple potential partners exist, both within DoD and in the larger HA/DR communities. The technical requirements for the system include standard, commercial, off-the-shelf software, hardware, and store and forward methodologies. For future applications, CDHAM intends to determine the applicability of the system for implementation into hand-held platforms being developed across other projects.

Educational Development - Military Medical Humanitarian Assistance Courses. Of ten Military Medical Humanitarian Assistance Courses (MMHAC) initially developed by CDHAM, six are in final

preparation for conversion into web-based programs. The content of the courses is being updated from lesson plans originally developed, during 2001-2002. While the definitions and the military's view of complex emergencies have not changed much concerning basic dialog, the execution and response by the DoD has continued to evolve. The introductory lectures of many of the courses of instruction are being reevaluated in accordance with current language and policies. From available materials, six courses are considered ready for web-based conversion; these were ranked using the following prerequisites: immediate availability for HTML conversion for web presentation; availability of materials, including electronic copies of reference materials and examinations; current application to disaster management; and, organization and structure of the course material. Beta test versions of courses ready for piloting via CDHAM's homepage on the World-Wide-Web are being finalized and just-in-time instructional curricula will soon be available for utilization by DoD commands and other first responder activities.

Quality Assured Training for First Responders. In February of 2005, the USU Centers for Humanitarian and Assistance Medicine (CDHAM) and the Study of Traumatic Stress (CSTS) received $1.5 million from the United States Congress to implement ***a collaborative initiative for the sharing of quality assured training in the medical response to weapons of mass destruction (WMD) with the uniformed and civilian Emergency Responder and Health Care Provider Communities across the Nation, via the Internet***. This collaborative initiative will assist in the preparedness for, and recognition of, a WMD incident; it will be a multi-disciplinary, interactive, quality assured, and tiered program leading to the awarding of continuing medical education (CME) credits, continuing nursing education (CE) units, and certificates of completion. The program is designed to reach a broad spectrum of uniformed and civilian students within the health care community, Federal health care responders, and others in the medical response community. The four primary disciplines include (but are not limited to) physicians, nurses, administrators (health care executives, emergency managers, city/county managers, etc.), and pre-hospital staff (law enforcement, emergency medical technicians, fire, hazmat, etc.). The program will be open to the public, free of charge, and available for anyone interested in enrolling. *Collaborative relationships have been developed over the past two years and subject matter experts identified with the United States Northern Command (NORTHCOM), the Reserve Components, the Department of Veterans Affairs (VA), the Office of the Secretary of Defense (OSD), the United States Public Health Service (USPHS), the Center for Disease Control and Prevention (CDC), and the Association of Academic Health Centers*. ***The technology is being developed to capture/break out totals for*: *1)*** uniformed or civilian recipients of the training; ***2)*** the primary disciplines of the students; ***3)*** completed training by states and districts; ***4)*** organizations represented; ***5)*** CME/CE credits, units and certificates issued by discipline; and, ***6)*** customer satisfaction information. ***This data will be used to determine the cost avoidance generated for DoD*** and will be made available to organizations, as appropriate. CDHAM expects to launch the program in early 2006. (*See Section II, RESEARCH CENTERS AND PROGRAMS, CDHAM, for further information on this initiative*.)

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The Interdisciplinary Graduate Program in Emerging Infectious Diseases. This interdisciplinary Ph.D. training program is designed primarily for individuals who wish to devote their graduate training to the study of the pathogenesis, host response, and epidemiology of infectious diseases. ***The mission of the Emerging Infectious Diseases (EID) Graduate Program is to provide the scientific community with broadly-trained, outstanding scientists who can contribute significantly to the increasingly complex field of infectious disease mechanisms and pathogenesis.*** The importance of accomplishing these educational goals, in the area of EID research, cannot be underestimated given the increasing threats of bioterrorism and the risks associated with emerging and re-emerging infectious diseases. ***As part of the EID Program,***

courses on the agents and effects of bioterrorism are offered. To date, this program is one of the only graduate programs in the Nation to offer formal training in this critical area. Nine uniformed and civilian students entered the program, in August of 2004. (*See Section IV, GRADUATE EDUCATION PROGRAMS, for further detail on this one-of-a-kind program*.)

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The Center for Prostate Disease Research, USU SOM Department of Surgery - A TriService Effort.

> **Researchers led by Dr. Shiv Srivastava from the Center for Prostate Disease Research (CPDR), Uniformed Services University of the Health Sciences (USU), report the groundbreaking discovery of the ETS-Related Gene (ERG) as one of the frequent proto-oncogene overexpressions in prostate cancer cells. This discovery provides a very promising addition to a select group of genes, whose expression is frequently altered in prostate cancer cells and could provide novel molecular targets for diagnosis, prognosis or therapy of prostate cancer in the future... This discovery was the result of a highly coordinated effort by urologists, pathologists and cancer biologists from Walter Reed Army Medical Center (WRAMC), USU, the Armed Forces Institute of Pathology (AFIP), the Walter Reed Institute of Research (WRAIR), and the National Human Genome Research Institute (NHGRI).**
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> - *Promising Lead in Prostate Cancer Diagnosis, New Discovery*, Medical News Today, June 11, 2005.

Background. The Center for Prostate Disease Research (CPDR) is a United States Department of Defense multi-site Program with major sites in Washington, D.C., and in the cities of Bethesda and Rockville, Maryland. ***The CPDR is dynamic in that it integrates basic and clinical science programs and continues to make significant progress in developing promising detection techniques and treatments for prostate cancer and disease***. The CPDR is a USU Program; it is affiliated with the Walter Reed Army Medical Center (WRAMC) and the Armed Forces Institute of Pathology (AFIP), both located in Washington, D.C., as well as ***nine, TriService (Army, Navy and Air Force) Military Medical Centers*** located throughout the United States. The CPDR is administered by the Henry M. Jackson Foundation for the Advancement of Military Medicine.

Mission. ***The CPDR integrates a multi-disciplinary approach to prostate cancer and continues to make great strides in clinical and basic science research for improving the diagnosis, treatment and management of prostate cancer patients.*** The Center's strategy is to focus investigators on potential breakthrough research leading to translational, cutting-edge technologies within the three major research programs (*Basic Science, Clinical, and Database*) while maintaining the core support requirements for all of its programs. **Colonel David G. McLeod, MC, USA, Urologic Oncologist, Walter Reed Army Medical Center, Professor, USU SOM Department of Surgery,** continues to serve as the Director of the Center for Prostate Disease Research; Colonel McLeod, following a national search, fills the endowed Clinical Chair Position. The CPDR Basic Science Research Program is led by **Shiv Srivastava, Ph.D., CPDR Co-Director and Scientific Director, Professor, USU SOM Department of Surgery**; following a national search, Dr. Srivastava fills the Judd Moul Molecular Surgeon Basic Science Chair, an endowed

chair position. The CPDR actively participates in the training and education of Post-Doctoral Fellows and Urology Residents. During 2004, ten Post-Doctoral Fellows and two Urology Residents were in training in multi-disciplinary prostate cancer research at the CPDR. The same number is projected for 2005. The CPDR also continues to sponsor one Ph.D. Graduate Student, two MHS Residents, three International Fellows, and six Summer Students.

Clinical Research Center Provided Medical and Clinical Trial Services to 4,637 Patients in 10,311 Appointments and Consultations During 2004. The CPDR Clinical Research Center (CRC) is located on Ward 56 at WRAMC; it provides state-of-the-art care to military beneficiary patients affected by prostate disease, with particular emphasis on enrolling military beneficiaries in clinical trails. The CPDR combines prostate screening, data collection, clinical diagnosis, education and counseling in a distinctly patient-oriented setting. ***During 2004, the CPDR-CRC rendered medical and clinical trail services to 4,637 patients in 10,311 appointments and consultations.*** This represents an increase over the 9,567 appointments and consultations on 4,019 patients, which took place during 2003. ***Service participation includes specialists and residents from Urologic Oncology, Radiation Therapy, Psychology, Patient Education, as well as research staff to ensure that all treatment options available to the patient are carefully explained. After the patients have met with all of the specialists, the group meets to discuss the individual cases presented and offers recommendations to the patients to assist them in their treatment decisions***. In addition to providing a valuable service to DoD beneficiaries, the opportunity to collect more widely comprehensive data on their care and to expand the database in the areas of medical oncology and radiation therapy was realized. ***The WRAMC Clinical Research Center currently has over twenty clinical trials, which offer a number of very innovative clinical protocols not offered anywhere else in the Military Health System***. A comprehensive CPDR tissue bank and serum bank have been developed from patients treated for prostate cancer and other prostatic diseases at the WRAMC Center.

Basic Science Research Program Receives High Recognition for Academic Activities. The CPDR Basic Science Research Program (BSRP), located at sites in Bethesda and Rockville, Maryland, continues to focus on cutting edge molecular and cell biology research, with a goal to better understand the biology of the disease and to develop novel diagnostic and prognostic biomarkers and targeted therapeutic strategies for the treatment of prostate cancer. The multi-disciplinary focus of the CPDR ensures integration of the CPDR-BSRP researchers with Urologists, GU-Pathologists, Epidemiologists, Biostatisticians, Medical Technologists, and experts in the areas of Bio- and Medical Informatics and Regulatory Affairs. In 2004, the CPDR-BSRP continued to produce peer-reviewed high quality papers in leading cancer research journals, including ***Oncogene***, ***Clinical Cancer Research***, the ***International Journal of Oncology***, ***Anti-Cancer Research***, ***Clinical Chemistry***, and the ***Journal of Urology***. Also during 2004, the CPDR-BSRP was awarded ***three peer-reviewed grants*** (*NIH-RO1, NIH-UO1, subcontract, and DoD-PCRP Resource Development*). And, ***one United States patent was issued for the CPDR discovery of the novel prostate specific gene, PCGEM1, and its potential prostate cancer biomarker***.

CPDR TriService Clinical Database. In 2004, significant improvements were made to CPDR's TriService clinical database. The revised Master Protocol was approved, by USU, on October 12, 2004. Subsequently, each participating military center has undergone the Institutional Review Board (IRB) process for approval. ***The 19,000+ patient database is the largest and most comprehensive longitudinal prostate cancer database in the United States***. The overarching goals of the Master Protocol revision and database reorganization were to enhance compliance with the Health Insurance Portability and Accountability Act (HIPPA) regulations and to circumvent potential challenges to proper patient consent and data sharing

across participating clinical sites. As a key modification to previous standard practice, data will no longer be sent as raw data files to investigators; instead, only final analyses will be sent in a collapsed, tabulated form. Overall, the major restructuring to the clinical database and Master Protocol have set the stage for dramatic improvement to the data quality, security, and usability of the clinical database. As a remaining goal, linkage of clinical data to tissue and serum bio-specimen data will be required to effectively carry out translational research. (*See Section II, RESEARCH CENTERS AND PROGRAMS, CPDR, for further information on this Program*.)

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11th Annual Faculty Senate Research Day, School of Medicine Graduate Student Colloquium, and the Graduate School of Nursing Research Colloquium - 2004. For the first time, the annual Faculty Senate Research Day and School of Medicine's Graduate Student Colloquium were formally joined with the Graduate School of Nursing Colloquium. Activities for all three events, held on the USU campus on May 12-13, 2004, centered on the theme ***Operational Readiness: Research for Best Practices***. *The two-day meeting* ***brought nearly 300 individuals to the USU campus***, including researchers from area affiliates such as the ***National Naval Medical Center***, the ***Walter Reed Army Medical Center***, the ***Armed Forces Institute of Pathology***, the ***National Institutes of Health***, ***American University***, ***Georgetown University***, ***George Washington University***, the ***Howard Hughes Medical Institute***, the ***Washington Hospital Center***, and the ***Centers for Disease Control and Prevention***, as well as other prominent government agencies, universities, and hospitals.

Both the School of Medicine's Graduate Student Colloquium and the Graduate School of Nursing's Research Colloquium were held on the USU campus on Wednesday, May 12th. As the culminating event that day, the USU President hosted a University-wide *President's Poster Session and Reception*, featuring ten posters selected for the quality of research, clinical and/or operational significance, and presentation. The 2004 Graduate Student Colloquium featured a career development workshop on job opportunities for graduate students; student poster and platform presentations; and, the annual *John W. Bullard Lecture*. The *2004 Bullard Lecture,* ***Transcription Factors and Cancer***, was presented by **James E. Darnell, Jr., M.D., Vincent Astor Professor at The Rockefeller University**. The Graduate Student Colloquium, established in 1980, promotes scholarly interchange between SOM graduate students and the academic community at USU, as well as the recognition of the research achievements of current SOM graduate students. The Graduate School of Nursing's Research Colloquium, now in its fifth year, consists of platform and poster presentations by students in the GSN. In 2004, GSN presentations were divided into three sessions: Operational Readiness; Clinical Decision-Making in the Federal Health Care System; and, Population Health & Outcomes. The all-day session culminated in an awards ceremony for the school, including research and teaching awards for both faculty and students.

The 11th Faculty Senate Research Day was held on Thursday, May 13, 2004. **Brigadier General Eric B. Schoomaker, M.D., Ph.D., MC, USA, Commanding General, Southwest Regional Medical Command and Eisenhower Army Medical Center, and Lead Agent for TRICARE Regions 3 and 15**, delivered the plenary lecture. BG Schoomaker's long association with USU includes an assignment as a USU faculty member in the Department of Medicine, in the 1990's. His talk, entitled, ***Operational Readiness and USUHS: From Basic & Behavioral Science to Emerging Best Practices***, focused on the role that USU is particularly suited to play in conducting research that draws on a wide range of scientific results and has relevance for present needs across the Services. The Research Day program also included both poster sessions and the full range of clinical, basic science, behavioral, and public health research taking place at USU and panel discussions on topics such as: *Rehabilitation, Restoration of Function, and*

Return to Duty; *All You Need to Know About Specimen Storage, Databases, & Future Use*; *Cancers in the Military Population*; *Deployment Experiences: Lessons Learned*; *Emerging and Re-Emerging Infectious Diseases*; and, *Mission-Based Proteomics*.

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ORGANIZATIONAL CULTURE

STEWARDSHIP: We will protect and enhance the human and physical resources of the University, optimize productivity, promote a sense of family and community, while emphasizing flexibility in response to changing world conditions.

- **USU Strategic Plan**, Goal 5, approved by the USU Board of Regents, in May of 2003.

Continuous Efforts to Ensure a Diverse Community that Is Powerful, Committed, and Energized. A common challenge for most educational institutions is the goal to recruit and retain highly qualified students, faculty, and staff. As USU works to achieve that goal, it must also strive to reflect the diversity that exists in both the Uniformed Services and our Nation. The five USU Offices of University Recruitment and Diversity (ORD), Student Affairs (OSA), Civilian Equal Employment Opportunity (EEO), Military Equal Opportunity (EO), and the Brigade Commander (BDE) collaborated with the Civilian Human Resources (CHR) Directorate, during 2004, to ensure that the University continued to promote respect, appreciation, and understanding throughout its multi-Service activities. During 2004, the University's emphasis was on encouraging cooperation, development, diversity, communication, and collegiality by: 1) the identification and encouragement of equal opportunity principles and diverse cultures through numerous university forums, individual counseling sessions, recruitment strategies, and community service activities; 2) the timely sharing of relevant information through continuing orientation programs, on-going USU publications, educational web sites, and advanced technology; and, 3) the provision of extensive development and recognition programs for the civilian and uniformed members of the USU family.

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Communicating Equal Opportunity Principles and Appreciation of Diversity.

500 USU Personnel Participate in Two Community Events. During 2004, the USU Office of Equal Employment Opportunity (EEO), with the volunteered-support of the USU Special Emphasis Program Managers, continued to present USU Community Sessions to reinforce both the understanding of, and the appreciation for, the cultural diversity that exists throughout the University. Numerous events were conducted during the past year, to include two Special Emphasis Events. On February 12, 2004, **James L. Collins, Sr., M.D., Colonel, USA (Retired), Professor, USU SOM Department of Psychiatry,** presented the Keynote Address to 200 USU personnel for the Martin Luther King, Jr., Birthday Observance. And, on January 13, 2005, over 300 members of the USU community commemorated the life of Dr. Martin Luther King, Jr., by witnessing a dramatic, one-person presentation entitled, *Let Freedom Ring*, portrayed by **Brother Moses**; the event was a resounding success. In addition, visits were coordinated to the Holocaust Memorial Museum, in Washington, D.C.

Student Professional Activities. The coordinating efforts of the USU Office of Recruitment and Diversity (ORD) administratively support the following student groups: ***the Asian Pacific American Medical Student Association*** (APAMSA); ***the American Medical Student Association*** (AMSA); ***Women in Medicine and Science*** (WIMS); and, the ***Student National Medical Association*** (SNMA). During

2004, USU students were very active and continued to provide outstanding recruitment support to ORD. They visited local area schools to talk with elementary, middle, and high school students; and, they also attended their various regional and national meetings. ORD will continue to include selected members of these student groups in any new initiatives undertaken during the coming year. ***AMSA USU Chapter President, 1LT Josh Tyler, USAF, presented a resolution to formally recognize a Military Medical Interest Group at the AMSA National Meeting, held in March of 2005. The resolution passed by a large majority, enabling medical students enrolled in military scholarship programs and USU a voice in the largest medical student association in the United States***. USU was also recognized by AMSA as the fastest growing chapter for 2004, thanks to the efforts of **2LT Josh Tyler, USAF,** and **2LT Geoffrey Chin, USA**. Six students, **Lieutenant Commander Ron Jones, USN, USU Navy Company Commander,** and **CAPT Cynthia Macri, MC, USN, Vice President, ORD,** attended the Annual Convention of the Student National Medical Association, held in New Orleans. And, WIMS and APAMSA successfully supported two outreach initiatives at the Wheaton High School and the Stone Ridge School of the Sacred Heart, during 2004.

Provision of Formal and Informal Counseling. The USU Offices of Equal Employment Opportunity (EEO), Equal Opportunity (EO), Recruitment and Diversity (ORD), and Student Affairs (OSA) continued to provide formal and informal counseling, throughout the Year 2004. The EO Office (military) did not have to provide formal counseling sessions to the uniformed members of USU, during 2004; the EEO Office (civilian) provided eleven informal counseling sessions to the USU civilian staff, during the past year. Beginning in September, OSA conducted well over 300 formal interview and counseling sessions for the first and third-year medical students; in addition, ORD also continued to provide individual counseling sessions for numerous uniformed students. The success of these counseling sessions is evidenced by the ever-increasing appreciation and respect shared among the individual members of the University. In addition, the EO representatives for the USU Brigade provided EO training for all uniformed members of the University, during 2004; the training sessions addressed diversity, acceptance of others, management of difficult situations, and the identification of harassment in both the work place and in the academic setting.

Faculty Senate Outreach Program for Working Mothers. In response to recommendations of the USU faculty and the President of the Faculty Senate, the Office of Administration and Management coordinated the construction and establishment of a Mother's Lactation Room to assist working mothers, who wish to continue breast-feeding their babies after returning to work. The room provides for privacy and is equipped with appropriate furniture, electrical outlets, and a refrigerator for the storage of expressed milk. At the time of its establishment, during 2000, USU was the only DoD entity to provide such a facility. The program continued, throughout 2004.

USU Center for Health Disparities Research and Education. The USU SOM Departments of Medical and Clinical Psychology and Family Medicine were awarded a $7 million grant from the National Institutes of Health (NIH) National Center on Minority Health and Health Disparities, to sponsor the USU Center for Health Disparities Research and Education, referred to as *Project EXPORT*. ***The Center's goal is to promote positive health-related change and ultimately eliminate disparities among racial and ethnic minorities through research, education, training, community outreach, and information dissemination.*** During 2004, the Center's Research Component sponsored four research projects, which utilized: networks outside of traditional settings to eliminate health disparities; weight management studies; health assessment surveys; and, cultural proficiency training to achieve the Center's goals. ***The Center's Education Component***

provided cultural sensitivity training for eight of the twelve Family Medicine Clerkship rotation sites at the various Army, Navy, and Air Force activities where USU medical students carry out their actual clerkships. The Community Outreach and Information Dissemination Component collaborated with multiple partners to solidify programs for high school students to tour USU and learn about careers in the health care field. Other partners worked with the Center to maximize the health care provider's encounter as a tool in reducing health disparities through its sponsorship of interactive workshops, presentations by improvisational actors, and the development of questionnaires. **Richard Tanenbaum, Ph.D., USU SOM Department of Medical and Clinical Psychology,** serves as the Principal Investigator. **David S. Krantz, Ph.D., Professor and Chair, USU SOM Department of Medical and Clinical Psychology,** is the Center Director; and, **Lori Dickerson-Odoms** is the Program Manager. (*See CURRICULUM RENEWAL and RESEARCH PROGRAMS AND CENTERS in Section II of the Journal for further information on Project EXPORT.*)

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Timely Sharing of Information.

The USU Web Is Used to Provide Information Throughout the USU Community. During 2004, the Department of Biomedical Informatics (BID), under the direction of **A. Leon Moore, Ph.D., Professor and Chair, USU SOM Department of Biomedical Informatics,** continued to support the University's educational efforts through its Center for Informatics in Medicine (CIM). Today, CIM hosts over 100 educational web sites for the University; these sites serve on-site and distance learning students, residents, and faculty. Significantly, the Department continued its support for the USU PDA Initiative. Personal Digital Assistants (PDAs) have been issued to three classes of School of Medicine (SOM) and Graduate School of Nursing (GSN) students. The USU PDA Initiative was highlighted at the Symposium of the American Medical Informatics Association, in November of 2002, resulting in the publishing of a paper, ***The USU Medical PDA Initiative: The PDA as an Educational Tool***, during 2003. BID continues to fulfill its responsibility for the Clinical WebLog <*http://cweblog.usuhs.mil/*>, which is used by USU SOM students to document experiences, during their clinical years. ***CWebLog*** is currently used by seven third-year clerkships with access via a web browser and the PDAs issued to the SOM and GSN students. With assistance from the SOM Preventive Medicine and Biometrics (PMB) faculty and the USU Learning and Resource Center (LRC) staff, during 2003, the BID established its second course, ***BID-510, Introduction to the Department***, which organizes and teaches ***MCB-501, Introduction to Computers for Bioinformatics Computer Skills***; this new course was implemented, during 2004. The Department also continues to support the establishment of a high performance research network at USU, ***Internet2***. The BID connection to *Internet2* became operational through the National Library of Medicine and has hosted multiple demonstrations from its USU laboratories.

The 2003/4 Edition of the USU Journal. To ensure that information was shared with both internal and external customers, the ***University published and distributed more than 800 copies of the 2003/4 Edition of the USU Journal, during 2004***. Each copy included a CD-ROM; and, all 329 USU faculty members received a copy of the Journal in CD-ROM format. ***Each Edition of the USU Journal provides an inclusive background on the history and development of the University; it also describes the achievements of the past year and any changes, which may have taken place throughout USU's educational programs, centers, and institutes***. The Journal, sometimes referred to as ***The USU Encyclopedia***, serves as a source document for the University's responses to congressional, executive, and general requests for information,

throughout each year. ***This annual report, coordinated by the Vice President for Administration and Management with the University President and over 70 Activity Heads and Chairs, documents how relevance, readiness, and optimization are successfully emphasized throughout the University's programs and activities and assesses how the goals of the USU Strategic Plan have been met, during the past year***. Numerous letters of acknowledgement and accolades have been received by the University since its initial distribution; selected examples include: the USU Deans, Department Chairs, and Activity Heads; the Secretary of Defense, the Deputy Secretary of Defense; the Secretary of the Air Force; the Chairman of the Joint Chiefs of Staff; the Chief of Naval Operations; the Commandant of the Marine Corps; the Surgeon General of the United States Public Health Service; the American Medical Association; the Institute of Medicine; the Air Force Association; and, numerous Members of the Cabinet of the President of the United States.

USU Orientation Program. Since October of 2000 through 2004, the USU Civilian Human Resources Directorate, with the participation of the senior leadership at USU, has sponsored formal sessions of the USU Faculty and Staff Orientation Program for 535 in-coming civilian and uniformed members of the University community: 45 during 2000; 92 during two sessions held in 2001; 119 during three sessions held during 2002; 157 trained during 2003; and, 122 during 4 sessions held in 2004. ***The purpose of this on-going program is to present the newly-appointed members of the USU community with the philosophy, goals, policies, and leadership principles of USU***. Orientation packets with key facts and other selected information, to include the CD-ROM for the current USU Journal, are provided for review and future reference. For example, the USU Office of Environmental Health and Occupational Safety (EHS) briefs the new employees on its initiatives to raise the safety consciousness of the USU researchers and the general community. In addition, since February of 2000, the SOM Office of Faculty Affairs has maintained a Faculty Handbook on the USU web site, which describes the organization and functions of the various components of the University; it serves as a quick guide for the delegation of responsibilities at the University and where to seek information, guidance, or other faculty-related requirements. New faculty members are introduced to the USU web site and encouraged to utilize the above-mentioned information. Since its establishment, the USU Orientation Program continues to successfully promote a positive experience for the new employees and allows them to meet the senior management of USU; orientation sessions are continuing, during 2005.

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Personal Development and Retention.

Individual Recognition. Throughout 2004, the USU community worked to build and strengthen cooperation, integrity, trust, and collegiality, as well as, to reward individual members for their contributions. An on-going performance evaluation process, developed by the Civilian Human Resources Division (CHR) and the Brigade Command, ensures that each USU employee (civilian and uniformed) receives an annual rating and appropriate recognition for his/her accomplishments. During 2004, CHR continued its procedures for tracking individual employee's years of service. The University President personally presented service awards to designated employees at their work sites. The program has been well received; ***to date, 236 civilian service awards have been presented. And, during 2004, the Office of Military Personnel approved, processed, and presented 71 awards for the USU military personnel***: 1 Joint Meritorious Unit Award (AFRRI); 2 Legion of Merit Awards; 34 Defense Meritorious Service Medals; 31

Joint Service Achievement Medals; 1 Army Commendation Medal; 1 Army Achievement Medal; and, 1 Military Outstanding Volunteer Service Medal.

Training Opportunities Provided to USU Employees. During 2004, the USU Offices of Civilian Human Resources (CHR), Medical Education (MEE), Faculty Affairs (ADF), Research Administration (REA), the Brigade Command (BDE), University Recruitment and Diversity (ORD), Equal Employment Opportunity (EEO), and Equal Opportunity (EO) provided programs and support to assist the University community in its self-development and training requirements. *Civilian Human Resources (CHR) sponsored the establishment of* ***a University Toastmasters International Club****, in 1999;* ***active participation continued, during 2004, with 30 active members***. The ***Executive Leadership, New Leader, and Aspiring Leader Programs have been on-going for some years***; four individuals were sponsored in these programs, during 2004. In addition, numerous training opportunities were provided by CHR to the USU civilian work force that were linked closely with the establishment and expansion of Individual Development Plans. ***CHR used 165 training vouchers, during 2004, and 75 on-line subscriptions for computer-related training for the Microsoft Office Suite***. Through the use of vouchers, USU faculty and staff were provided opportunities to attend off-site computer classes through CompUSA or New Horizons. USU employees were also provided an on-line computer training option through ***ElementK***, which allows the individual to complete training assignments, through the Internet, while at home or at work. ***A total of 441 employees were trained on-site***, to include 70 attendees of the Ethics Training Classes, which were conducted by the Office of the USU General Counsel. On-Site Classes provided by CHR included: *Writing KSAs* (69 participants); *Stress & Anger Management* (27 participants); *Criticism & Discipline Skills for Supervisors* (32 participants); *Writing Federal Resumes* (32 participants); *Retirement Planning* (29 participants); *Supervisory Training* (30 participants); *Prevention of Sexual Harassment* (30 participants); and, *New Faculty & Staff Orientation* (122 participants).

USU Faculty Attend Development Courses and Seminars. During 2004, **Cindy C. Wilson, Ph.D., Professor, USU SOM Department of Family Medicine,** coordinated, on behalf of her department, with the SOM Offices of Faculty Affairs and Medical Education, to sponsor numerous courses and seminars, which strongly supported faculty development at the University. ***During 2004, 195 attendees earned over 1,000 hours of continuing education.*** The following are selected examples of the successful activities, during 2004, which led to the enhancement of the professional skills of the USU faculty members: ***1)*** *Everything You Wanted to Know About Congressionally Directed Research but Did Not Know Who to Ask*; ***2)*** *Accept, Revise, Reject: How to Review Educational Research Papers*; ***3)*** *Evidence-Based Medicine: From Research to Practice*; ***4)*** *Preparing a Lecture for Medical Students*; ***5)*** *Surgeon's Communication with Colleagues and Patients*; ***6)*** *A Community of Scholars: The Dialog Continued*; ***7)*** *Communication Skills in Clinical Care Settings*; ***8)*** *Observation, Experiment and the Changing Nature of Evidence-Based Medicine*; and, ***9)*** *Writing for Impact: Effective Writing for Public Health Practitioners*. Additional topics that were taught at USU's affiliated teaching sites included: ***1)*** *Advising Residents*; ***2)*** *Optimal Faculty Composition*; ***3)*** *Chief Resident's Roles and Keys to Success*; ***4)*** *Medical Students Evaluation and Feedback*; ***5)*** *Doing Research in Family Medicine/DoD*; and, ***6)*** *Hyperlipidemia*. In addition, ***the Vice President for Research continued to conduct classes for the USU faculty on the submission of research proposals***, throughout 2004.

USU Health Center Tobacco Cessation Program. Established during 2002, and on-going during 2004, the USU Health Center Tobacco Cessation Program is a four-session program designed to help individuals to quit using tobacco products. Most individuals requesting tobacco cessation assistance are cigarette smokers; but, individuals who use smokeless tobacco (dip or chewing tobacco), pipes, cigars, etc., may enroll in the program. The lead for the USU Tobacco Cessation Program for uniformed personnel is **Major Nicole L. Frazer, Ph.D., USAF, BSC, Assistant Professor, USU SOM Department of Family Medicine, and Director, Clinical Health Psychology**; she can be reached at <*nfrazer@usuhs.mil*>.

The program is based on the guidelines established by the Agency for Health Care Policy and Research (*AHCPR; 1996*); the Clinical Practice Guideline for Treating Tobacco Use and Dependence (*United States Public Health Service; 2000*); and, the VHA/DoD Clinical Practice Guideline for Promotion of Tobacco Use Cessation in the Primary Care Setting (*2001*). The program consists of at least four sessions with the provider including the enrollment session, the quit date session, and two follow-up sessions. The program is a comprehensive behavioral treatment program, which involves behavior modification, stress management skills training, and the use of medications. Six weeks of nicotine replacement therapy involving the nicotine patch are available as part of the program for those participants who are medically qualified. Zyban (buproprion) is also available for eight weeks, beginning with the first enrollment session. Individuals must participate in the tobacco cessation program and attend the sessions to obtain the medications. Research indicates that these medications do not work unless combined with a comprehensive behavioral treatment program. A data base has been created so that all participants can be entered and tracked at three, six, and twelve months following their *quit date*. It is conservatively estimated that twelve individuals have quit smoking since November of 2002, when the program was initiated. Civilian employees at the University, who wish assistance with ending their use of tobacco products, may contact the University Environmental Health and Occupational Safety (EHS) staff at <*asorrels@usuhs.mil*>.

OSD Confirmation of USU Title 10 Authority. During Fiscal Years 1997 and 1998, there had been a one-year suspension on the inclusion of allowances in the calculation of retirement benefits for the USU Administratively Determined (AD) employees (faculty and staff) who are covered under TIAA-CREF, Fidelity, or any other retirement system not established under Title 5 U.S.C. This issue, which involved USU's Title 10 authority, was resolved with OSD through the coordinated efforts of the OSD Office of the Deputy Assistant Secretary for Civilian Personnel Policy, Washington Headquarters Services, the USU President, and the USU Vice President for Administration and Management. As a result, the inclusion of allowances in the calculation of benefits for USU AD employees was reinstated by OSD for Fiscal Year 1999 and has been continued through the present; current 2005, OSD-approved, AD salary schedules include footnote references that confirm the reinstatement of this benefit.

Legislative Language Removes the Limits of Executive Level IV for the Annual Rate of Basic Pay. Previously, the annual rate of basic pay for USU AD employees was limited to be no more than the rate set for Executive Level IV. In many cases, this limitation resulted in the need for allowances to bring the total pay up to the limits established by OSD in the USU salary schedules. During the last quarter of Fiscal Year 1998, and following extensive coordination by the Vice President for Administration and Management, the OSD Office of the General Counsel, at the request of the Deputy Assistant Secretary for Civilian Personnel Policy, recommended the legislative change contained in Section 1108 of the Conference Report for the National Defense Authorization Act for Fiscal Year 2000. As a result, when the Authorization Bill for Fiscal Year 2000 was signed, it effectively removed the limitations of Level IV for the USU AD employees;

as appropriate, the upper pay limits of the USU AD salary schedules are now limited to the rate set for Executive Level I. This has proven to be a valuable tool for the recruitment and retention of essential faculty and staff by the USU President and Deans. Implementation actions for the reduction of allowances were initiated and implemented, during 2000, by CHR and continued, as appropriate, during 2004, to the present.

USU Administratively Determined Salary Schedules Are Approved. Previously, the USU salary schedules for the Administratively Determined (AD) employees had remained the same from 1993 through 1997. To address this concern, ***a Memorandum of Understanding***, coordinated by the USU Vice President for Administration and Management, and ***signed by the OSD Office of Civilian Personnel Management Services (CPMS), the Navy Bureau of Medicine, and the USU President, successfully resulted in the implementation of annual comparability studies by CPMS***. These comparability studies, completed in coordination with the USU Civilian Human Resources Directorate and the USU Faculty Senate Comparability Committee, serve as a critical component in the on-going review, updating, and implementation process for the USU AD salary schedules. As an example of the implementation procedures, when the Principal Deputy Assistant Secretary of Defense (Force Management Policy) approved salary schedules for the USU AD employees on August 25, 1999, an increase in base pay was automatically provided for any AD employees whose base pay was lower than the minimum limits of the new salary scales; this process, based on currently approved salary schedules, has been continued to the present. Updated salary schedules have been continuously approved, since 1998, as follows: in July of each year, revised and OSD-approved salary schedules are effective and implemented based on current data and the CPMS comparability studies; then, in January of each year, the salary schedules are adjusted by CPMS to implement Executive Level I pay, as required. The salary schedules were updated, during January of 2005, to reflect the current pay status of Executive Level I.

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University Recruitment and Diversity.

OBJECTIVE: USU will recruit, reward, and retain outstanding and diverse students, faculty, and staff.

- **USU Strategic Plan**, Goal 5, First Objective, Goal 5, Approved by the USU Board of Regents in May of 2003.

Office of University Recruitment and Diversity. The USU Office of Minority Affairs was established, in 1991, with a mission to increase the participation and advancement of traditionally underrepresented minority and women students, faculty, and staff at the University. The Office of Minority Affairs, under the initial leadership of **Jeannette E. South-Paul, Colonel, MC, USA, Vice President for Minority Affairs**, established numerous programs to especially increase the recruitment and retention of underrepresented minorities at the University. Following COL South-Paul's selection to serve as Chair, SOM Department of Family Medicine, **Charles W. Campbell, Jr., Colonel, USAF, MC, FS,** served as the second USU Vice President for Minority Affairs. In April of 1999, **Carolyn L. Miller, Lieutenant Colonel, USAF,**

BSC, was selected as the third USU Vice President for Minority Affairs. During 1999, following extensive discussions with the USU President and the Board of Regents, the University's Strategic Plan was modified to specifically address University recruitment and diversity. Subsequently, during 1999, the Office of Minority Affairs was renamed as the Office of University Recruitment and Minority Affairs; during 2000, strategy sessions to enhance the recruitment efforts of the University resulted in a decision to further modify the office title to the Office of Recruitment and Diversity (ORD). The USU Strategic Plan has continuously retained strategies for both marketing the University and targeting the increased recruitment of women and underrepresented minorities. The Office of Recruitment and Diversity (ORD) has remained committed to increasing the general public's awareness of the University; thus, ORD has continued to market the University and introduce military medicine, USU, and the United States Public Health Service to prospective applicants. By the end of 2001, the following areas were included among the numerous program responsibilities of ORD: on-going recruitment efforts; retention and student support activities; community service; and, the USU Post-Baccalaureate Program.

LtCol Miller departed the University for her next assignment on July 31, 2002; on September 26, 2002, the USU President announced his selection of **Cynthia I. Macri, CAPT, MC, USN, Director of the Health Professional Scholarship Program (HPSP), Naval Medical Education and Training Command (NMETC), to serve as the USU Vice President for Recruitment and Diversity** (on a part-time basis)**.** The Vice President of ORD began to serve on a full-time basis, at USU, in July of 2003. CAPT Macri's previous position at the Naval Medical Education and Training Command (NMETC), where she served as the Navy's Director of Medical Department Accessions, included the Armed Forces Health Professions Scholarship Program (AFHPSP) and the Health Professions Loan Repayment Program (HPLRP). Under the leadership of CAPT Macri's results-oriented management system, ORD has developed new initiatives in support of the University's Strategic Plan, utilizing her experience, information, and validated recruitment strategies.

During 2004, the Office of Recruitment and Diversity (ORD) enjoyed success in its efforts to continue and improve initiatives that had been started, during 2003. These initiatives are focused on supporting the ORD mission to build a student body at USU that mirrors the diversity of the Nation, as well as, to provide support to student organizations that celebrate diversity. ORD recruiting initiatives, during 2004, were aimed at both high school and undergraduate pre-med students. The high school program, developed by CAPT Macri, is entitled, ***Science, Medicine and Mentoring (S2M2)***. This is the first attempt by any USU entity to develop and implement an intensive program with a rigorous curriculum for high school students (a detailed description follows). Half-day *get acquainted programs*, tailored for small or large groups of visiting undergraduate students from local colleges and universities, were developed utilizing both uniformed and civilian faculty members. In addition, outreach endeavors, by current USU student ambassadors, were carefully coordinated with nationwide undergraduate campus recruiting events.

Alumni Liaison Program. The USU/ORD Alumni Liaison Program continues to contribute to the recruitment of medical school applicants by USU SOM alumni. ***Congratulatory letters are sent to USU alumni as they are selected to the ranks of 0-5 and 0-6 in each of the respective Uniformed Services***. As a result of a recent survey conducted by **Ms. Sharon Willis, Office of Alumni Affairs,** alumni volunteers have been enlisted to attend local recruitment events either at their undergraduate institutions or at local colleges and universities. ***More than two-thirds of the most recent USU graduates indicated that they would be willing to assist with local recruitment efforts at their respective duty stations***.

Enhancement of a Diverse Environment. The efforts expended by ORD to increase USU's overall recruitment reaped some noticeable results. As reported by the USU Office of Admissions, ***the total number of women applicants increased by eight percent (626 to 715), in 2004. And, the number of minority applicants increased from 205 to 248 (also eight percent)***. A greater effort is planned to encourage women and students among ethnic groups underrepresented in medicine to apply to USU. By seeking program participation at appropriate conferences and attending recruitment events in areas that produce the greatest number of overall medical school applicants from underrepresented ethnic groups, these numbers should continue to increase in the future. ***In addition, comprehensive career counseling and admissions assistance are offered on an on-going basis to a growing pool of qualified applicants among active duty enlisted service members and junior officers***.

During 2004, ***ORD distributed promotional materials to over 5,000 potential applicants***. Visitors to recruitment booths and the ORD web page received an array of information outlining the benefits of a USU education, the financial incentives for attending USU, the opportunities in military medicine, and some practical advice for applying to medical schools. The great majority of recruitment materials are cost-effectively produced in-house to meet the needs of the potential candidates.

Five States and District of Columbia Model. One of the initiatives adopted by ORD during the past year is the ***Five States and District of Columbia Model***, developed by **Mr. Peter Stavish, Assistant Dean, USU Office of Admissions.** This model identifies the undergraduate institutions that provide the greatest number of applicants to USU within the surrounding regional states of Pennsylvania, Maryland, North Carolina, South Carolina, and Virginia, to include the District of Columbia. The proximity of these states, combined with the opportunity to offer on-campus tours and *get acquainted programs* and the high quality of past applicants to the school of medicine, makes this approach more cost-effective as compared to extensive travel to larger conventions and career fairs.

During 2004, staff, USU students, and Armed Forces Health Professional Scholarship Program (AFHPSP) recruiters made more than 35 visits on behalf of USU. These visits included the following campuses and/or students were from many of the following colleges or universities: Rutgers The State University of New Jersey; San Diego State University; University of North Carolina-Chapel Hill; Stanford University; Virginia Polytechnic Institute and State University; Murfreesboro State University; University of South Alabama; Oakwood College; University of Alabama at Huntsville; University of Alabama at Tuscaloosa; Stillman College; University of Alabama at Birmingham; Samford University; Spring Hill College; Alabama State University; Alabama A and M University; Auburn University; Huntingdon College; Miles College; Troy State University at Dothan; University of Mobile; University of North Alabama; University of South Alabama; Johns Hopkins University; University of Florida at Gainesville; Rollins College; University of South Florida; Xavier University in New Orleans; Northwestern University; University of California, Irvine; Massachusetts Institute of Technology; South Carolina State University; Claflin University; Chaminade University; Hawaii Pacific University; UMDNJ at Piscataway/Brunswick; Case Western Reserve University; Muhlenberg College; University of Virginia; Southern Illinois University; Birmingham Southern College; University of Montevallo; Faulkner University; and, Troy State University. ***Over 3,800 students were introduced to USU as a result of the above-listed visits to college campuses, meetings of regional and national student groups, career health fairs, and professional associations, during the 2004 Calendar Year***.

Science, Service, Medicine and Mentoring (S2M2) Summer Program 2004. As mentioned earlier, S2M2 was a pilot program developed by **Cynthia I. Macri, M.D.** CAPT Macri expended great effort to ensure that the curriculum was relevant, diverse, and intensive, and at the same time, of interest to the students. She crafted a very detailed-oriented curriculum for academically strong high school students who aspire to become physicians. Ten students were selected, ages 14 to 17, for the pilot program. The high schools represented were the Stone Ridge School of the Sacred Heart, Bethesda-Chevy Chase High School, Mt. Hebron High School, Bishop Ireton High School, and the Walter Johnson High School, all from the local area. The week-long curriculum culminated in a community health fair, presented by the students. The students created brochures describing various health-related topics and were available to answer questions and to discuss their posters. USU SOM students: **ENS Vincent Zizak**; **ENS Obi Ugochukwu**; **2LT Anna Makela**; **2Lt Josh Tyler**; **2LT kimberly McKinney**; **ENS Conshombia McArthur**; and, prospective student, **Brad Privett**, served as student mentors, throughout the week. ***Clinical and basic science faculty from USU, the National Naval Medical Center (NNMC), the Walter Reed Army Medical Center (WRAMC), and the Armed Forces Institute of Pathology (AFIP) provided insightful discussions, hands-on laboratory sessions, and clinical mentoring***. As a direct result of the program, three students traveled with their parents to the Minority Medical Careers Awareness Workshop sponsored by the Association of American Medical Colleges (AAMC) held in Boston, Massachusetts, on November 6, 2004. ***Evaluations received from the participants, USU students, faculty, and ORD staff revealed that the S2M2 was a great success***. Three African American young women will participate in a volunteer program at NNMC, during the Summer of 2005. The graduating senior student will attend college this Fall on a full scholarship with the declared major of *Pre-Medicine*; an additional two students have applied for the Summer Internship Program (SIP) in Biomedical Research at the National Cancer Institute (NCI), to be held during the Summer of 2005. CAPT Macri wrote letters of recommendation for all of the above students. Two week-long summer sessions will take place, during the Summer of 2005.

Publications and Marketing. ***Do I Have What It Takes? A Guide to Medical School Admissions*** was published by CAPT Macri with assistance from the Visual Information Directorate at the Naval Medical Education and Training Command, in February of 2004. Copies were distributed to the Supervisor of Documents for the Navy for 300 Federal Libraries, which, in turn, distributed copies across the United States, including 15 copies furnished to the Library of Congress. This is the first marketing tool published solely for the purpose of attracting undergraduate students to consider USU when planning for a career in medicine; ORD now sends this pocket-sized notebook to all contacts and individuals who inquire about USU or medicine as a career. Copies were sent to the National American Medical Association Meeting, held in Chicago, Illinois; the Force Health Protection Meeting; the Annual Meeting of the Association of Military Surgeons of the United States (AMSUS); and, the National Veterans Affairs Meeting.

Ventures Scholar Program. The Ventures Scholar Program (VSP), headquartered in New York City, focuses on mentorship of disadvantaged students. A VSP subscription entitles its members to a monthly listing of high school and undergraduate students who request more information from the schools they select. All of the students are academically qualified and most are first generation college students. ***As a paid subscriber to VSP services, ORD is given another marketing option to reach disadvantaged, yet highly qualified, students***. Most of these students aspire to become scientists and/or physicians. ORD screens the list of interested students and selects those who appear to have potential for matriculation to USU. Both a letter and an information packet are sent, followed by personal contacts via telephone or e-mail. To date, ORD has sent packets to more than 50 prospective students and continues to receive monthly inquiries from its service.

Visits from National Student Organizations. During the past year, the following student organizations visited USU: the National Native American Youth Initiative; the National Hispanic Youth Initiative; the National Student Leadership Conference; the National Youth Leadership Forum; and, Presidential Classrooms. Most of the students in these organizations are in high schools from across the Nation; and, many participate in these summer organizations to get a first-time tour of the Nation's Capital. Some, however, are also interested in a career in medicine or science; often times, it is very difficult to determine those students who are interested in such a career. ORD intends to modify its hosting of these students to include the smaller number of students who could be potential applicants to USU. The newly instituted half-day programs similar to those offered to the Delaware State University pre-matriculation students, hosted by ORD, during the Summer of 2004, should provide access to the specific groups of students who are interested in a career in science and medicine, and in particular, military medicine.

Student Support Outreach Programs. The student groups that ORD administratively supports are: the ***Asian Pacific American Medical Student Association*** (APAMSA); the ***American Medical Student Association*** (AMSA); ***Women in Medicine and Science*** (WIMS); and, the ***Student National Medical Association*** (SNMA). During 2004, USU students were very active and continued to provide outstanding recruitment support to ORD. They visited local area schools to talk with elementary, middle, and high school students; and, they also attended their various regional and national meetings. ORD will continue to include selected members of these student groups in any new initiatives undertaken during the coming year. ***AMSA USU Chapter President, 1LT Josh Tyler, USAF, presented a resolution to formally recognize a Military Medical Interest Group at the AMSA National Meeting, held in March of 2005. The resolution passed by a large majority, enabling medical students, who are enrolled in military scholarship programs and USU, a voice in the largest medical student association in the United States***. USU was also recognized by AMSA as the fastest growing chapter for 2004, thanks to the efforts of **2LT Josh Tyler, USAF,** and **2LT Geoffrey Chin, USA**. Six students, **Lieutenant Commander Ron Jones, USN, USU Navy Company Commander,** and **CAPT Cynthia Macri, MC, USN, Vice President, ORD,** attended the Annual Convention of the Student National Medical Association, held in New Orleans. And, WIMS and APAMSA successfully supported two outreach initiatives at the Wheaton High School and the Stone Ridge School of the Sacred Heart, during 2004.

USU Post-Baccalaureate Program. The University began its one-year Post-Baccalaureate Program on August 9, 1999, and is in its sixth year of operation. The 2003 post-baccalaureate students were fully accepted to the USU School of Medicine, in August of 2004; and, both were commissioned into the United States Air Force. Three qualified students were accepted into the Post-Baccalaureate Program, in 2004. As the program progresses, ORD will continue to have a role in providing mentorship and counseling and any other indicated services to ensure that the participants successfully matriculate into the School of Medicine.

Through this program, USU identifies applicants to the SOM who may benefit from an introductory year consisting of a portion of the first-year SOM curriculum. Students, who achieve a grade of *B* or better, are re-evaluated for full admission to the SOM. The admissions criteria, to include physical and security standards, are the same for the Post-Baccalaureate Program students as for all other SOM applicants prior to matriculation. The Program was originally developed to enhance the cultural, ethnic, and experiential diversity of the educational environment within the USU SOM by offering the opportunity of a Post-Baccalaureate Program to selected students, who identify themselves as members of cultural or ethnic

groups traditionally underrepresented in Medicine, or who are otherwise disadvantaged. Students are administratively registered in the SOM Graduate Education Program and receive an annual stipend similar to a first-year graduate education student. The USU Executive Committee initially approved the design, criteria, funding, and evaluation of the Program; each year, this committee evaluates the Program, before commitments are made, to determine its continuation. As in past years, the USU Office of the General Counsel, the Admissions Office, and the ORD staff collaborated to ensure that the Program objectives were met.

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The Office of the Brigade Commander. The USU Brigade Commander is recognized as *the senior active duty officer* of the University and reports directly to the President of USU. It is the responsibility of the Brigade Commander to ensure that the uniformed personnel assigned to the University adhere to the appropriate service specific standards set by their parent Services. In addition, the Brigade Commander assures that the interests of the military members assigned to the University are addressed and that they remain competitive for promotion with their service peers. Under the leadership of the Brigade Commander, the uniformed students, faculty, and staff assigned and reporting to the School of Medicine (SOM), the Graduate School of Nursing (GSN), the Graduate Education Programs, or other USU activities, programs or divisions must participate in all activities and events as they would in any other command of the Uniformed Services. Regular formations are held; physical fitness exercises, standards, and testing are adhered to; performance evaluations are completed and rated; and, uniformed personnel are trained in the appropriate uniformed programs and customs.

A Multi-Service Environment. The USU Brigade provides a clear chain-of-command for all uniformed members, thus allowing individuals to rapidly assimilate into their new units and the multi-service environment of USU. The Brigade Command structure includes three subordinate commands that report directly to the Brigade Commander. These subordinate commands include the Commandants from both the SOM and the GSN and the Headquarters Company Commander, who is responsible for the health and welfare of all assigned enlisted service members. The SOM has three Company Commanders representing the Army, Navy, and the Air Force; they are specifically assigned to USU to provide for military training in officership and leadership. A United States Public Health Service officer is also responsible for providing this special training to the Public Health Service students. The Company Commanders are mentors for the students and they deploy with them, during each of the University's field training exercises. The USU uniformed faculty and staff also conduct service-unique training, inspections, and military formations. Similar to the Service Academies, each student class also has its own military command leadership structure. The students rotate positions among the class members, which increases individual exposure in the management of specific assignments, duties, and *command* roles. Tactical senior medical non-commissioned officers are also assigned to each student company to provide mentorship and to assist the Company Commanders with training requirements.

Establishment of the Office of the USU Chaplain. In July of 1999, the Navy Surgeon General approved additional billets for a Navy chaplain and an enlisted assistant at the USU joint command. The arrival of the chaplain and his assistant as *the first permanently assigned ministry team at USU* filled a void in pastoral care that had existed since the foundation of the University. Following the establishment of the Office of the USU Chaplain, within the Brigade Command, essential counseling and guidance is now available and provided to the USU students and assigned staff.

The mission of the Office of the USU Chaplain is to support and enhance the quality of life of the USU military personnel, to include their families, through spiritual development, as needs are identified and requested. The Office facilitates the free exercise of religion for USU military personnel and their families. Chaplain ministry is needs-based, performed cooperatively, and executed within a pluralistic environment. Faith-specific Student Associations are formed as needs are identified. USU faculty and staff are encouraged to participate in the Student Association of their choice and to support and/or mentor the students in their spiritual formation in a similar manner as guidance is provided for the development of academic skills. Within regulations, under the University President and the Brigade Commander, and administered by the Office of the Chaplain, the Student Associations are self-governed to meet the specific needs and interests of their constituents. The areas of Ministry are: 1) Pastoral Care (*to include prayer,*

scriptures, insight, listening, encouragement, and support); 2) Pastoral Counseling (*provision of individual, marriage, and family counseling on moral, ethical, emotional, spiritual, or faith issues*); 3) Pastoral Visitation (*ministry of presence at the University, visitation of the hospitalized and confined, and pre-operative prayer or counseling, as requested*); 4) Spiritual Direction (*integration and guidance provided to an individual for spiritual development*); 5) Observance of Religious Rites (*religious observances, command functions, memorial services, and social activities*); 6) Classes and Seminars (*discussions in the areas of value formation, ethical decision-making, bioethics, and faith-related topics*); 7) Literature Ministry (*provision of devotional, inspirational, and self-help literature*); 8) E-Mail (*communication of the thought-for-the-day and weekly inspirational thoughts*); 9) Referral Service (*assistance in locating a place of worship, military or civilian, and counseling referrals for requested guidance outside of the Chaplain's expertise*); and, 10) Field Exercises (*provide worship services, training, and ministry in the field environment for students and staff*).

Development of International Relationships. In the Fall of 2000, the USU Brigade Commander initiated a dialogue with the Commander, German Armed Forces Command, United States and Canada, which resulted in the establishment of the ***German Troop Duty Proficiency Badge Program at USU***, making the University the first United States Armed Forces medical organization, in the Military District of Washington, to gain sponsorship from the German Armed Forces Command for this program.

The program provides USU students and faculty with an opportunity to compete for, and attain, the prestigious ***German Troop Duty Proficiency Badge, which recognizes excellence in both physical fitness and readiness***. Besides being a foreign badge, the award is unique, because earning the badge is strictly based on the abilities of each participant and not dependent on the decision of an awards board. Facilities and logistics for the USU program involve strong community relations with agencies and personnel outside of the University, including the Walt Whitman High School at Fort Meade, Maryland, and the National Naval Medical Center, in Bethesda, Maryland.

In order to earn the badge, individuals must achieve minimum standards involving times and distances, while qualifying in the following events: shot put; long jump; sprint (*75 meters for women; 100 meters for men*); swim (*200 meters*); marksmanship (*9 millimeter pistol*); long distance run (*2,000 meters for women; 3,000 meters for men*); and, a road march (*distances range from 20 to 30 kilometers, depending on age, sex, and type of badge - bronze, silver, or gold - that the participant is qualifying for*). Participants must also be in good standing with the University/Brigade and pass a first-aid course. There are two main road marches each year, followed by an awards ceremony: the *US/GE Day,* hosted by the Military District of Washington, during the Spring; and, the *GE/US Day*, hosted by the German Armed Forces Command, during the Fall.

Upon the successful completion of all events, the German Armed Forces Commander presents each individual with a certificate and badge. Participants may then provide their Unit Awards and Decorations Representatives with a copy of their certificates, which are then forwarded to their respective Service Major Command Personnel Centers for inclusion in their permanent military records. During 2004, 32 USU medical students and faculty members competed for the German Troop Duty Proficiency Badge.

***Official Wear of the Badge*:** Army and Air Force personnel are authorized to wear this badge on their service dress uniforms; Navy personnel are not authorized to wear the badge.

Assurance of Operational Skills. The Brigade's Operations Department provides the planning, coordination, and logistical support for the USU military field training exercises for the first- and fourth-year medical students. The Operations Department planned and executed five major exercises, during 2004. Three Operation Bushmaster exercises were held at Camp Bullis, Texas: January 13-22, 2004 - ***Operation Bushmaster 01-04***; September 20-30, 2004 - ***Operation Bushmaster 02-04***; and, November 13-23, 2004 - ***Operation Bushmaster 03-04***. The fourth major exercise was held on June 21 - July 1, 2004 - ***Operation Kirkesner*** at Fort Indian Town Gap, Pennsylvania. And, on April 29, 2004, the fifth major exercise, the ***Antietam Road March***, took place at the Antietam Battlefield, Maryland. Through training such as Operations Kirkesner and Bushmaster, USU encourages each uniformed student to develop and maintain the special skills required to earn a leadership position in military medicine (*see Section II, MILITARY UNIQUE CURRICULUM, for further information*).

This year's Operation Kerkesner was the first to be conducted at Fort Indian Town Gap, Pennsylvania. This exercise was intended to not only train the first-year students, but also to validate Fort Indian Town Gap as a training site. ***Due to the success of Operation Kerkesner, the Interim President of USU gave approval to plan and execute the combined Operation Kerkesner/Operation Bushmaster exercises in July of 2005. The new name for this combined exercise will be the New Integrated Field Exercise (NIFE) for all future references***.

During the Summer of 2004, the USU Brigade Commander reported that the second-year medical students had participated in the following activities: **Army** - Mountain Warfare School; Clerkships at the Army Surgeon General's Office; Operational Emergency Medical Skills Course; National Training Center, Fort Irwin; Expert Field Medical Badge; and, United States Army Operational Units (*i.e., Fort Bragg, Fort McCoy, Fort Carson, Fort Riley, and Vicenza, Italy*); **Navy** - Airborne School; Diving School; Aerospace Medicine (*USS Roosevelt*); United States Navy SEALS; BUDDs, San Diego, California; Top Gun; Mountain Warfare Training; Amphibious Warfare School; Neuroanatomy Computing; Air Training Wing One, NAS Meridian, Mississippi; Air Training Wing Two, NAS Kingsville, Texas; *USS Carl Vincent*; NAVMED Clinic La Maddalena; HMX-1, Quantico, Virginia; 2nd Marine Division, Camp LeJeune, North Carolina; *USNS Mercy Hospital Ship*; the United States Navy Special Warfare Detachment; Tropical Medicine Course, Brazil; and, Sigonella, Italy; **Air Force** - Medical School Orientation to Aerospace Medicine; and, United States Air Force Hospitals and Research. From qualifying for the Expert Field Medical Badge, to conducting undersea medical research with the United States Navy SEALS, USU students are developing and maintaining the special skills required to assume leadership positions in uniformed medicine. Additionally, the diverse and exciting training USU students complete during their summer training activities helps the University to accomplish ***Strategy 6.4.2 of the USU Strategic Plan*****:** *USU faculty, staff, students, and alumni, both on-site and off-site, will be provided information relevant to their career enhancement, mission, and interests*.

The Brigade Headquarters Company is the enlisted Brigade Command support element for USU. In addition to the performance of their military occupation specialties, during normal duty hours, the enlisted members of the Headquarters Company ensure that equipment, supplies, transportation, and personnel are positioned to accomplish all major field exercises, per year. The Brigade is responsible for ensuring that the enlisted personnel at USU are proficient in their operational support skills that enable them to remain competitive for promotion.

Orientation Responsibilities. During the first quarter of each Academic Year, the Brigade staff conducts an orientation/in-processing week for all uniformed students, whether they are matriculating into the SOM, GSN, or the Graduate Education Programs. In the case of the 167 first-year medical students for

Academic Year 2004, Brigade letters were issued to the incoming students to include a detailed calendar of events outlining their in-processing week. This increased level of detail facilitates the orientation process and eliminates students' concerns over appropriate uniform, classroom, and Brigade requirements. The military aspects of the University are stressed during the first week, as well as, the students' responsibilities in their primary role as military officers.

Recruitment Efforts for Underrepresented Communities. The Brigade continued to reach out to the ROTC and underrepresented communities, during 2004. The Brigade's recruitment efforts, during 2004, included presentations on the value of a USU medical education at the following universities: the University of Arkansas at Little Rock; the University of Westminster, Missouri; the University of Mississippi; and, the University of Missouri. The membership of **Charles S. Serio, Colonel, MS, USA, USU Brigade Commander,** on the Medical Advisory Selection Committee, at West Point, continued to give USU exposure to some of the top military academy students in the country.

USU Color Guard. Formal ceremonies have continued to be an important element of military tradition since the earliest armies and navies entered combat. Whether at a retirement, change-of-command, or a unit stand-up, the military goes to great lengths to showcase its command, its people, and its pride in the Nation. Color guards have long been an important part of these ceremonies; and, USU is carrying on that tradition through the establishment of its own color guard, in 1997. The USU Color Guard is comprised of enlisted members from the Army, Navy, and the Air Force. The first major performance of the USU Color Guard occurred at the 1997 USU Graduation; the colors were also presented, during the USU Brigade Change-of-Command Ceremony, in 1997, and at the Headquarters Company Change-of-Command Ceremony, in May of 2004. This past year, the USU Color Guard had the opportunity to represent the University and the military at the opening of major sporting events and to participate in numerous off-campus retirements/funerals and congressional events. During the USU May graduations, from 1998 through 2004, the USU Color Guard has brought the colors on stage during the commencement ceremonies, which are held at the National Society of Daughters of the American Revolution Constitution Hall, in Washington, D.C. The USU Color Guard was a key participant in the retirement ceremonies for the USU President, James A. Zimble, M.D., in August of 2004. The Color Guard was also invited and participated at a special Veterans Day Ceremony at the Halls Crossroads Elementary School, in Aberdeen, Maryland, on November 11, 2004. And, during 2004, the Color Guard performed at the annual *USU Dining-Out*, during the Presentation Ceremony, as well as, at the National Association of Military Surgeons of the United States (AMSUS) Convention, in San Antonio, Texas.

Officer Indoctrination Training of USU Matriculants. Formal studies were undertaken, in 2003 and 2004, to assess the value of conducting a *Basic Officer Indoctrination Course* on the USU campus for all Army, Navy, and Air Force matriculants to the USU SOM. At the present time, the Surgeons General spend approximately $500,000 per year to transport and house USU non-prior-service Navy and Air Force matriculants and all of the USU Army matriculants so that they can attend their service-specific officer indoctrination courses, prior to their arrival at USU. Because of the time constraints that occur due to the timing of college graduations, the notice of final acceptance by USU Admissions, and the receipt of official military orders, some of the USU matriculants have been unable to attend these courses prior to their arrival, at USU. Due to the USU requirements for military training during the Summer following the first year of medical school, it is almost impossible for those students, who miss their indoctrination courses, to make them up without impacting on their medical education requirements. The Brigade currently proposes to investigate the efficiency of having all USU matriculants attend a *USU TriService Indoctrination Course*,

to be held at USU, during July and August, prior to the Brigade orientation and class initiation activities. Topics, which are applicable to all Services, would be held in a large lecture room, while service-specific topic sessions would be held in the smaller USU classrooms. Faculty from USU could be augmented with temporarily assigned instructors, as required by each of the present course coordinators. Incoming students would no longer be required to travel elsewhere, before their arrival at USU, which would accommodate the location of housing for themselves and their families, prior to course commencement. Although cost-savings would be partially offset by the temporary travel and housing for the visiting faculty, the overall savings would still be significant. In addition, each in-coming class would have the opportunity to develop a strong sense of *esprit de corps*, prior to the beginning of classes. This effort would fall under ***Strategy 6.4.2 of the USU Strategic Plan*****,** since USU would be providing an additional level of military educational training specifically for the USU SOM students. ***Goal 3 of the USU Strategic Plan*****:** *We will optimize resources to efficiently and effectively implement USU core capabilities*, supports the proposed USU effort to coordinate with each of the Services to generate cost-effectiveness for the administrative and financial aspects of the current process for USU SOM student indoctrination.

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Goal 5, STEWARDSHIP**, of the USU Strategic Plan includes a requirement for the University to establish an enhanced sense of intramural community. The Combined Federal Campaign is one event, which crosses all boundaries within the University and unifies the entire USU community, through a common goal of sharing with those who are in need, either in our own community, or on a global scale.**

USU Exceeds Established Goals for the Combined Federal Campaign. From 1997 through 2004, the University has exceeded its Combined Federal Campaign (CFC) goal, due to the tremendous efforts and coordination of the Office of the USU Brigade Commander. Under the leadership of the USU Campaign Managers, the total contributions reached over $176,599, in 2004. Approximately 55 percent of the USU staff, students, and faculty contributed to the Campaign for worthy community, national, and world charities. ***The Year 2004 marks the eighth consecutive year in which the University has exceeded its goal.***

USU also earned the ***2004 CFC Honor Award*** for attaining 105 percent of its goal of $169,000 and for having a per capita gift of over $175. In doing so, USU had a total of 64 *Eagle* donors (46 single *Eagles* with contributions representing at least one percent of the employee's salary; and, 18 double *Eagles* with contributions representing at least two percent of the employee's salary).

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UNIVERSITY HONORARY DEGREES, AWARDS AND RECOGNITION

The University will promote a sense of family, community and outreach.

- Goal 5, STEWARDSHIP, USU Strategic Plan.

The University Has Granted a Total of 37 Honorary Degrees Since its Establishment. Since the first Honorary Degree that was granted in 1991, ***through April of 2005***, a total of 37 recipients have been selected. The Honorary Degree recognizes individuals who have demonstrated outstanding support for the Military Health System and/or the Uniformed Services University of the Health Sciences.

Honorary Degree Recipients:

1991 **Jay Sanford, M.D., Third President of the University and first Dean of the School of Medicine,** recognized as a major participant in the establishment and early leadership of the University;

1992 **Harry C. Holloway, M.D., Professor, USU Department of Psychiatry, and Deputy Dean from 1990 through June 1992,** recognized for unwavering support during a transitional period;

1993 **The Honorable Daniel K. Inouye, United States Senator from Hawaii, Senate Appropriations Committee,** recognized for continuous leadership and support for Military Medicine and the University as one of the original members of the Congress who supported the establishment of the University;

1994 **Mr. Zachary Fisher, Champion of the Armed Forces,** recognized for his founding of the Intrepid Museum, the Fisher House Foundation, the Fisher Armed Services Foundation, and his tremendous support for both Military Medicine and the University;

The Honorable David Packard, Former Deputy Secretary of Defense, first Chairman of the USU Board of Regents, and Acting President of USU from 1976 to 1981, recognized for his oversight, during the original construction of the USU campus, and his constant support for Military Medicine and the University from its establishment in 1972, until his death, in 1996;

1995 **The Honorable Sam Nixon, M.D., Former Chairman of the USU Board of Regents and Founder of the USU Tradition of the Mace for the University Commencement Ceremonies,** recognized for his dedication to Military Medicine and the superb leadership he provided to the University;

Frank Reynolds, M.D., Internationally recognized throughout the practice of civilian medicine and for his continuous support and interest in both Military Medicine and the University; he was also the commencement speaker, during the 1995 Commencement Ceremonies;

The Honorable Strom Thurmond, United States Senator from South Carolina, Chairman, Senate Armed Services Committee, recognized for continuous leadership and support for Military Medicine and the University and as one of the original members of the Congress who supported the establishment of the University;

1996 **Michael E. DeBakey, M.D., Renowned Surgeon, who has been recognized by numerous Presidents of the United States** and leaders of many nations, for his knowledge of medicine and his unwavering support for Military Medicine and the University;

The Honorable Melvin R. Laird, Former Secretary of Defense and continuous supporter of Military Medicine and the University, recognized for his provision of essential guidance and support, since the establishment of USU;

Francis D. Moore, M.D., Internationally recognized as a distinguished Surgeon and supporter of Military Medicine and for his consistent support to the educational programs within the University;

1997 **Donald L. Custis, M.D., Vice Admiral (Retired), Former Surgeon General of the United States Navy,** recognized for his career of dedicated service to Military Medicine and consistent support for the University;

The Honorable C. Everett Koop, M.D., Former Surgeon General of the United States and Member of the USU Board of Regents, recognized for his consistent support for Uniformed Medicine and the University;

The Honorable Constance Morella, Member of the United States House of Representatives from the State of Maryland, recognized for her outstanding dedication to quality health care, medical research and technology, and for her unwavering support for the University;

President Ronald W. Reagan, President of the United States from 1980 through 1988, recognized for his dedication to the welfare of the Armed Forces, Military Medicine, and the University;

1998 **General Charles Krulak, Commandant, United States Marine Corps,** recognized for his outstanding support for Military Medicine and for the welfare of the University; he presented the commencement address, during the 1998 Commencement Ceremonies;

Joshua Lederberg, Ph.D., Nobel Laureate and Internationally Recognized as a Leader in Medicine and for his participation in, and support of, University activities and programs;

V. M. Rexroad, Brigadier General, United States Air Force, recognized as one of the original supporters of the University and for his dedication to Military Medicine and long-term dedication to the welfare of the University from its establishment, until his death, in 2002;

David C. Sabiston, Jr. M.D., Internationally Recognized throughout the Civilian Practice of Medicine for his dedication and support of Military Medicine in general and for his unwavering support for the University;

1999 **Oliver H. Beahrs, M.D., Professor of Surgery, Emeritus, Mayo Medical School, Past President of the American College of Surgeons,** recognized for his continuous support for Military Medicine in general and for his on-going and dedicated support for the University;

Sheila Burke, Executive Dean, Lecturer in Public Policy, John F. Kennedy School of Government, Harvard University, Former Chief of Staff, Office of the Republican Leader, United States Senate, from 1986 to 1996, recognized for her dedication to Military Medicine and the University;

The Honorable Paul S. Sarbanes, United States Senator from Maryland, recognized for his unwavering support of, and dedication to, essential legislation for both the Military Health System and the University;

2000 **The Honorable William S. Cohen, Secretary of Defense,** recognized for his outstanding support and dedication to Military Medicine and to the welfare of the University;

2001 **The Honorable Robert J. Dole, Former United States Senator from Kansas and Senate Majority Leader,** recognized for his tremendous history of service to his Nation during War and Peace and for his commitment to the health care of the Armed Forces and to the University;

Val G. Hemming, M.D., Professor and Dean Emeritus, USU School of Medicine, recognized for his dedicated and outstanding service, which began in 1965, through his retirement, in 2002; his sincere and successful leadership resulted in tremendous acclaim for the University from the Department of Defense and the United States Congress;

The Honorable Theodore F. Stevens, United States Senator from Alaska and Chairman of the Senate Appropriations Committee, recognized for his great dedication to the Nation, the health care of the Armed Forces, and the continuation of the University;

2002 **Faye Glenn Abdellah, Ed.D., Sc.D., RN, FAAN, Professor and Dean Emerita, USU Graduate School of Nursing,** recognized as a nurse, educator, researcher, an internationally acclaimed leader, and the Founding Dean of the newly established and accredited Graduate School of Nursing;

F. William Blaisdell, M.D., Professor of Surgery, UCD, and Chief of Surgical Services, Sacramento, VA Medical Center, recognized as a physician, researcher, and scholar, for a lifetime of service to the cause of medicine, and as a friend of military medicine and USU;

The Honorable Lonnie R. Bristow, M.D., Past President of the American Medical Association and Chairman of the USU Board of Regents, recognized as a driving force in the American Medical Association and for the initiation of a ground-breaking project in performance measures to determine the success of USU students and graduates;

Anthony R. Curreri, M.D., First President of USU, Recipient of the Department of Defense (DoD) Distinguished Public Service Award, in 1977, recognized, posthumously, for his leadership and vision, during the establishment of the University. From 1974 through 1976, he led the development and implementation of the strategies, goals and organizational structure, which ultimately ensured that USU would meet its mission to provide continuity and leadership for the Military Health System. Doctor Curreri orchestrated collaborative efforts with the military departments, medical associations, and civilian universities during the creation of USU's first academic programs;

2003

The Honorable Richard H. Carmona, M.D., M.P.H., F.A.C.S., Vice Admiral, United States Public Health Service, Assistant Secretary for Health (Acting), Health and Human Services, Surgeon General of the United States, recognized for his on-going, Nation-wide leadership in the areas of medical preparedness and Homeland Defense and for his continued support for the University faculty and students;

John A. Mannick, M.D., Past-President of the Societies for Vascular Surgery and Surgical Chairmen, the American Surgical Association, the North American Chapter of the International Society for Cardiovascular Surgery, the New England Society for Vascular Surgery, and the USU Surgical Associates, recognized for serving over 20 years on the Visiting Board to the USU SOM Department of Surgery and for his untiring support for the University faculty, staff and students;

Major Alfred V. Rascon, MS, USA, Medal of Honor Recipient, recognized for his courageous service as an Army medic, during combat in the Republic of Vietnam, where he refused treatment for his wounds until his comrades were safe, and for serving as a role model for the graduates of the University;

Martin E. Silverstein, M.D., Clinical Professor, Family and Community Medicine (International Medicine), Georgetown University School of Medicine; Member, Executive Committee, World Association for Emergency and Disaster Medicine; Senior Fellow, American College of Gastroenterology; Clinical Professor of Surgery, USU SOM, was recognized as a physician, innovator, researcher, scholar and friend of the University. For over 20 years, he provided invaluable mentorship and support to the faculty, staff and students of the University;

(*Three Honorary Degrees Were Conferred During 2004*)

2004

General Barry R. McCaffrey, USA (Retired), received the Doctor of Military Medicine *Honoris Causa* in recognition of his selfless service to the Nation as

America's most decorated four-star General, his leadership as the Director of the White House Office of National Drug Control Policy, and his commitment to military health care and research;

The Honorable C.W. Bill Young, United States Representative from Florida and Chairman of the House Appropriations Committee, received the Doctor of Medical Jurisprudence *Honoris Causa*, in recognition of his great dedication to the Nation, the health care of the Armed Forces, and the continuation of the University; and,

The Honorable John Patrick Murtha, Jr., United States Representative from Pennsylvania and Ranking Member of the Defense Appropriations Subcommittee, received the Doctor of Medical Jurisprudence *Honoris Causa*, in recognition of his dedication to the Nation as a bi-partisan leader in Congress and advocate of military medicine and research.

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The University Medal.

Background. The University Medal is one of the University's highest honors. It was created in 1999, to pay tribute to deserving alumni, staff, and faculty members, friends and supporters of the University, its schools, programs, and mission. The recipients are recognized for professional or academic success or public service. Receipt of the University Medal is by endorsement and recommendation of the USU Committee for Names and Honors, submitted through the USU President, with the approval of the USU Board of Regents.

The University Medal, molded from silver, displays the University Seal on the front side; the medal's number, recipient's name, and the award date are engraved on the reverse side. 2004 marked the fifth annual presentations of the University Medal. As of April 2005, a total of 22 individuals have received the University Medal.

University Medal Recipients:

1999 **Lieutenant General Ronald Blanck, Surgeon General of the Army,** received the first University Medal at the November 1, 1999 Meeting of the USU Board of Regents. As Surgeon General, he served as a member and Chair of the USU Executive Committee; he was also the Assistant Dean of Student Affairs at USU, from 1976 through 1979;

2000 **David O. Cooke, Director of Administration and Management, Office of the Secretary of Defense,** was awarded the University Medal, during the USU Commencement Ceremonies on May 20, 2000, in recognition of his long-term service in the Office of the Secretary of Defense (OSD). From 1957 until his death

in 2002, Mr. Cooke provided continuous support and administrative guidance for Military Medicine and the University;

Rear Admiral Michael L. Cowan, MC, USN, Chief of Staff for the Assistant Secretary of Defense for Health Affairs (and later Surgeon General of the Navy), received the University Medal in recognition of thirty years of dedicated service in support of Military Medicine and the University. Admiral Cowan received the University Medal, during the USU Commencement Ceremonies, on May 20, 2000, following his presentation of the Commencement Address;

Jeffrey R. Swope, Director, USU Audio Visual Center, upon his retirement from public service, was recognized for his leadership in the establishment of the University Audio Visual Center, during 1977, and for his 23 years of continuous dedication and unwavering support to the USU community. The University Medal was presented on May 20, 2000, during the USU Commencement Ceremonies;

2001 **Lieutenant Colonel Yvonne Andejeski, MC, USA, USU SOM Class of 1983,** completed a residency in radiation oncology; she was board-certified, in 1987, and was active in patient care and research. She served as the Acting Chief of Radiation Oncology at the National Naval Medical Center and as the Chief of Radiation Oncology at the Walter Reed Army Medical Center, as well as, the Radiation Oncology Consultant to the Surgeon General of the Army. In addition to serving as the Program Manager for a congressionally-directed $240 million breast cancer research program, in 1998, she co-designed and co-managed the development of the DoD Breast Cancer Treatment Guidelines using a TriService, multi-specialty panel of oncologic, surgical, and primary care and psycho-social clinicians. Following her own diagnosis of breast cancer, in 1994, she selflessly continued her work through the Spring of 2001, when she retired from the Army and assumed a position at the National Cancer Institute. On March 31, 2001, during a retirement party in Doctor Andejeski's honor, Doctor Lee Poth presented the University Medal, on behalf of the University, in recognition of LTC Andejeski's significant contributions to research, medicine, the military, and the University. Doctor Andejeski died, in October of 2001;

Gerald W. Fischer, M.D., Colonel, MC, USA (Retired), received his commission in the United States Army in 1971, and began his pediatric training at the Madigan Army Medical Center, followed by an Infectious Disease Fellowship at the Tripler Army Medical Center. After arriving at USU in 1977, he earned the faculty rank of professor, within four years. During his twenty-year tenure in the USU Department of Pediatrics, he held numerous positions of importance. He is a superb clinician who has trained numerous military physicians as fellows in his specialty. His scientific career has been quite successful, earning both national and international recognition; he has also founded his own biotechnology company, Biosynexus. The University Medal was presented, on May 19, 2001, during the 2001 Commencement Ceremonies;

Connie Mariano, Rear Admiral, MC, USN, USU SOM Class of 1981, the first USU SOM Graduate to be promoted to 0-7, was the Commencement Speaker, during the 2001 USU Graduation Ceremonies. During June of 1992, RADM

Mariano became the first military woman to be named White House Physician; in February of 1994, she was promoted to Director of the White House Medical Unit and Senior White House Physician. **Doctor Mariano was promoted to Rear Admiral (lower half) on July 1, 2000, making her the first Filipino American to become an admiral in the history of the United States Navy.** The University Medal was awarded, following RADM Mariano's presentation of the USU Commencement Address, on May 19, 2001;

Michael N. Sheridan, Ph.D., USU SOM Associate Dean for Graduate Education, was recognized for his tremendous service to the University since 1980. Following his planned retirement during 2002, the University's presentation of this award reflected the tremendous respect and gratitude held by all for Dr. Sheridan's dedicated service and accomplishments, during his more than twenty years of outstanding service to the University. The University Medal was presented, during the USU Commencement Ceremonies, on May 19, 2001;

Craig Llewellyn, M.D., Professor and Chair, Department of Military and Emergency Medicine, received the University Medal on August 23, 2001, during the welcoming ceremonies for the new students. The award recognized the superb dedication of Doctor Llewellyn who served as the Department Chair of Military and Emergency Medicine for 14 years (1987 through 2001). Doctor Llewellyn first joined USU, in 1982, when he was selected to serve as the Commandant of Students, from 1982 through 1987. Doctor Llewellyn has served as a foundation for the University in its continuous efforts to effectively respond to the special needs of military medicine. He also served as the Director of the Center for Disaster and Humanitarian Assistance Medicine (CDHAM), which he established;

Norman M. Rich, M.D., Professor and Chair, Department of Surgery, was awarded the University Medal on August 23, 2001, during the 16th Annual Surgery for Trauma Day. Since the very inception of the University, Doctor Rich has continuously provided support and encouragement to the faculty, students, and graduates of the School of Medicine. On both the national and international scenes, Doctor Rich has contributed to a positive awareness of the University through his international efforts and memberships in elite organizations. He has been responsible for on-going visits by prestigious organizations to USU. Two examples of such visits include the Society of University Surgeons (*this premier organization for young academic surgeons has held two meetings at USU, whereas the majority of United States medical schools have never been visited*) and, the International Surgical Group composed of Professors from leading Canadian, British, Scandinavian, and United States Schools of Medicine;

2002 **Val G. Hemming, M.D., Professor and Dean Emeritus, USU School of Medicine,** was awarded the University Medal on April 25, 2002, by the University President, during Dean Hemming's retirement ceremony. Dean Hemming first came to USU in 1980 and served in the Department of Pediatrics, where he was appointed as the Department Chair, in 1987. In 1995, he served as the Interim Dean, until his appointment as Dean, in May of 1996. Under his leadership, the curriculum of the SOM was thoroughly reviewed and enhanced to better meet the special needs of the Uniformed Services. In all matters, Dean Hemming efficiently

kept the welfare of the students, faculty and staff of the SOM as a driving force, throughout his successful leadership;

Scott R. Lillibridge, M.D., CAPT, USPHS, USU Class of 1981, Leader of the Health and Human Services Coordinated Bioterrorism Initiative in July 2001, was awarded the University Medal, on May 18, 2002, at the USU Commencement Ceremonies. CAPT Lillibridge was also the Guest Speaker at the 2002 USU Commencement. At that time, CAPT Lillibridge served as the Special Assistant for Bioterrorism for the Secretary of Health and Human Services (HHS) and directed anti-terrorism efforts across HHS. He also served as the Director of the Bioterrorism Preparedness and Response Program for the Centers for Disease Control and Prevention, from 1998 through 2001. He joined the CDC in 1990, and in 1995, he led the United States Medical Delegation to Japan after the sarin gas attack in the Tokyo subway. Dr. Lillibridge also was the lead physician for the United States Public Health Service response following the Oklahoma City bombing. He has served in 14 nations on epidemiology and other public health issues; has had three books in press; and, authored or co-authored 25 publications on bioterrorism and various other public health issues;

Chester J. Pletzke, A.M.L.S., Former Director of the USU Learning Resource Center, received the University Medal, at the USU Commencement Ceremonies, on May 18, 2002. Mr. Pletzke provided exceptional service to USU for 24 years as the Director of the USU Learning Resource Center (LRC). His visionary planning, advocacy, entrepreneurship, marketing skills, and creativity resulted in the LRC becoming one of the outstanding medical university libraries and information centers in the United States. He forged partnerships with the National Library of Medicine, medical publishers, other medical libraries, information technology providers, and various government libraries to ensure that the LRC retained its national leadership. Every accrediting entity, since the establishment of the LRC, has recognized his superb leadership and the extraordinary support provided by the LRC to the students, faculty and staff at USU;

Dale C. Smith, Ph.D., Professor and Chairman, Department of Medical History, received the University Medal at the USU Commencement Ceremonies on May 18, 2002. Doctor Smith has already provided over twenty years of exemplary service to the University as a superlative teacher; mentor and critic; scholar of the history of medicine, military medicine and science; and, as a department administrator. His contributions in redefining scholarship and revising the University's essential policies for faculty appointment, promotion, and tenure have been critical. He has assisted with the development of new graduate programs in medical history, military applied physiology, and laboratory and animal medicine. In his capacity as an invited lecturer on medical and military history, throughout the Nation, and in many parts of the World, he has enhanced the recognition of USU, its mission, and the proud heritage of military medicine, in the United States;

Faye Glenn Abdellah, Ed.D., Sc.D., RN, FAAN, Professor and Dean Emerita, USU Graduate School of Nursing, received the University Medal on May 30, 2002, from the University President, during her retirement ceremony. Upon her arrival at USU, in 1993, Doctor Abdellah was faced with urgent requirements to

establish curricula, select a faculty, and gain approval from accrediting entities for the establishment of the USU Graduate School of Nursing (GSN). She accomplished all requirements with extraordinary success. As of April 2003, 183 advanced practice nurse graduates of the GSN had received graduate degrees in their specialties and were serving the Nation, in the Uniformed Services. The Nursing Chiefs of the Armed Forces extolled the success of the GSN during 2001-2002, when they met with the two accrediting organizations. Under the leadership of Dean Abdellah, the GSN met its mission and succeeded far beyond the established goals of the United States Congress and the Military Health System;

2003 **John Sarvey, Ph.D., USU SOM Professor of Pharmacology and Neuroscience,** was awarded the University Medal, on May 28, 2003. Doctor Sarvey was born in North Tonawanda, New York, and received his undergraduate training at Williams College, Massachusetts, majoring in chemistry. He then joined the Army Special Forces as a medic, where he rose to the rank of Sergeant First Class, serving for one year on active duty and a further six years in the National Guard. While in the National Guard, he completed a Ph.D. Degree in Pharmacology at the State University of New York at Buffalo. Doctor Sarvey joined the USU SOM Department of Pharmacology, in 1979; at the time of his death on August 20, 2003, Doctor Sarvey's research had attracted national and international attention. He used electro-physiological techniques to elucidate mechanisms underlying the phenomenon of long-term potentiation (LTP) in hippocampus and other brain regions. His laboratory was the first to show that LTP was prevented by inhibitors of protein synthesis and to identify roles for specific neurotransmitters. It is greatly to his credit that many of his students and trainees have gone on to develop distinguished research careers. He was also an excellent teacher of medical students, receiving on-going student recognition for his outstanding teaching skills. After his condition was diagnosed, he continued as the Course Director for the Medical Pharmacology Course. Doctor Sarvey's dedication, enthusiastic teaching and scientific contributions will be long remembered. He is greatly missed by his USU family;

John W. Lowe, Colonel, Medical Service Corps, United States Army (Retired), President and Chief Executive Officer of the Henry M. Jackson Foundation for the Advancement of Military Medicine, received the University Medal on May 9, 2003. Mr. Lowe joined the Henry M. Jackson Foundation (HJF), in 1988, after serving more than 30 years in the Medical Service Corps of the United States Army. His last active duty assignment was devoted to supervising the Directing Headquarters of the United States Army Europe, 7th Medical Command, which provided health care for over 500,000 United States military health beneficiaries, throughout Europe. For nearly ten years, Mr. Lowe has served as the HJF Program Director for a multi-year, multi-million dollar HIV research program conducted by the Department of Defense and the Foundation. Mr. Lowe has served as the President and CEO of the Henry M Jackson Foundation, since 1990. During the past 14 years, Mr. Lowe has ensured that the HJF continues to provide extensive scientific and project management services, of the highest quality, in support of military medical research and education at USU. Mr. Lowe has been instrumental in ensuring that the partnership between the Foundation and USU has grown and flourished; for example, during 2003, the HJF sponsored 43 research bridge grants

and, during the past few years, the HJF has awarded Research Fellowships to 11 outstanding graduate students at USU;

Leslie Sobin, M.D., Off-Campus Faculty Member and Lecturer, USU SOM Department of Pathology, received the University Medal, on May 22, 2003, on the basis of her prolonged contributions to the teaching programs of the USU SOM Department of Pathology. Doctor Sobin has lectured the USU SOM second-year medical students extensively on her subspecialty in Pathology, thus greatly enriching the curriculum for the SOM students. She is a world-recognized leader in Pathology and has delivered all of the USU SOM lectures on Gastrointestinal Pathology, since 1981. She is a superb lecturer and was nominated for the University Medal for her outstanding contributions, for over 23 years, to the USU SOM Department of Pathology;

Diane Solomon, M.D., Off-Campus Faculty Member and Lecturer, USU SOM Department of Pathology, received the University Medal, on May 9, 2003, based on her prolonged contributions to the teaching programs of the USU SOM Department of Pathology. Doctor Solomon has lectured the USU SOM second-year medical students extensively on her subspecialty in Pathology, thus greatly enriching the curriculum for the SOM students. She is a world-recognized leader in Pathology and has delivered all of the USU SOM lectures on Breast and Cervical Pathology, since 1986. She is a superb lecturer and was nominated for the University Medal for 18 years of outstanding contributions to the USU SOM Department of Pathology;

2004 **Charles R. Mannix, J.D., Vice President for Executive Affairs,** was awarded the University Medal, on March 17, 2004, by the University President. Beginning with his first appointment as USU's Assistant General Counsel, through his subsequent appointments as General Counsel and Executive Secretary to the USU Board of Regents, Mr. Mannix is recognized for his unconditional loyalty to the University, the establishment of the USU Patent Office, and his commitment to the well being of the faculty, staff, and students;

General Thomas R. Morgan, United States Marine Corps (Retired), received the University Medal, on May 14, 2004, during the USU Board of Regents meeting. General Morgan graduated from Colgate University with a Bachelor of Arts Degree in History and Political Science; he later earned a Master of Arts Degree in Counselor Education, from the University of Virginia. He was promoted to the rank of General, in 1986; served as Assistant Commandant of the Marine Corps; and, retired on July 1, 1988. General Morgan's service as a special advisor to the USU Board of Regents has enhanced the recognition of USU, its mission, and the proud heritage of military medicine; and,

James A. Zimble, M.D., President USU, Vice Admiral, United States Navy (Retired), was awarded the University Medal, on August 2, 2004, by the Chairman of the USU Board of Regents, during his retirement ceremony. In addition, Dr. Zimble was also presented with the DoD Medal for Distinguished Civilian Service, the highest civilian award presented by the Secretary of Defense; both awards recognized his leadership, medical readiness expertise, simulation technology-

oriented educational programs, and his long-term commitment to ensuring Force Health Protection and the well being of the University. As pointed out by the Secretary of Defense, because of "his vision, leadership and dedicated service, the Department can now boast of USUHS as the Academic Health Center for Military Medicine."

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The Carol J. Johns Medal.

Background. **Carol J. Johns, M.D., Professor, John Hopkins School of Medicine,** was a long-time enthusiastic and effective supporter of the University. Doctor Johns worked for the health and survival of the University in numerous ways. She served as a member of the USU Board of Regents from 1985, until her death, in 2000. A warm and gifted woman with remarkable personal humility and gentleness, Doctor Johns achieved the highest honors in academic medicine as a nationally recognized clinician, academician, and teacher. The University established an annual award in her name, the ***Carol J. Johns Medal***. The Medal will honor the faculty member whose accomplishments emulate Doctor Johns' spirit in: furthering the welfare and excellence of the USU faculty; promoting outstanding educational programs for the students; and, advancing the reputation of the University locally, nationally, and internationally. The Carol J. Johns Medal was presented for the first time, during the 2001 USU Commencement Ceremonies. Two individuals were chosen to receive the award, during the 2002 USU Commencement Ceremonies; and, one recipient received the award, during both the 2003 and 2004 USU Commencement Ceremonies. As of April 2005, a total of five individuals have received this prestigious award.

Recipients of the Carol J. Johns Medal:

2001 **Louis Pangaro, M.D., Colonel, MC, USA (Retired), Professor, USU SOM Department of Medicine,** was the first individual to receive the newly established Carol J. Johns Medal, during the 2001 USU Commencement Ceremonies, on May 19, 2001. Doctor Pangaro was selected due to his internationally recognized leadership in academic medicine and his commitment to the promotion of outstanding educational programs, which are acknowledged by his on-going selection to university and national initiatives dealing with curriculum reform;

2002 **Rosemary C. Borke, Ph.D., Professor, USU SOM Department of Anatomy, Physiology and Genetics,** was nominated by the USU Faculty Senate for the 2002 Carol J. Johns Medal. Doctor Borke is recognized as: an outstanding educator of medical and graduate students; an innovative leader in the development and implementation of curricula; a model for faculty leadership at the Department and University level; and, an internationally recognized expert in the area of peripheral nerve injury and repair. Her involvement in, and contributions to, all aspects of USU faculty service have established a level of unsurpassed excellence that stands as a model for all USU faculty. She has demonstrated excellence in promoting outstanding educational programs, furthering the welfare and excellence of the

USU faculty, and advancing the reputation of the University locally, nationally, and internationally;

Val G. Hemming, M.D., Colonel, USAF, MC (Retired), Professor and Dean Emeritus, School of Medicine, was chosen to receive the Carol J. Johns Medal, during the 2002 USU Commencement Ceremonies, on May 18, 2002. Nominated by the USU Faculty Senate, Dean Hemming was recognized for his endeavors in research for over 20 years. His research led to an innovative treatment that prevents death and disability from Respiratory Syncytial Virus infection in vulnerable pre-term infants. During his term of service as the Dean of the School of Medicine, he continued his on-going efforts to improve and reform the curriculum of the medical school. As with the rest of the Nation, the USU SOM faced a marked reduction in the number of patients available to students during their clinical rotations. To address this concern, Dean Hemming was instrumental in the development and implementation of the USU National Capital Area Medical Simulation Center (SIMCEN), which allows the effective and efficient use of simulated patients. In addition, the SIMCEN facilitates the implementation of the latest technological and educational advances for the teaching of physicians and students. His success in this effort will guarantee the value of USU as a resource for the effective training and testing of medical students and for the continuing medical education of health care providers for generations to come;

2003 **Norman M. Rich, M.D., F.A.C.S., Professor and Chair, USU SOM Department of Surgery,** was awarded the Carol J. Johns Medal, during the 2003 USU Commencement Ceremonies, on May 17, 2003. Since the inception of the University, Doctor Rich has continuously provided support and encouragement to the faculty, students, and graduates of the School of Medicine. Following a distinguished Army career, his military awards include: the Legion of Merit, Bronze Star, Meritorious Service Award, and Vietnam Medals. As the first Chair of the USU SOM Department of Surgery, Doctor Rich has contributed to the international awareness of the University through his multiple memberships in elite societies and associations and the organization of on-going visits by prestigious organizations to USU. Doctor Rich was named the USU SOM Outstanding Civilian Educator, in 1983; he received the USU Exceptional and Outstanding Service Medals, in 1989 and 2001; and, he was awarded the University Medal, during 2001. In 1999, he received *The J.E. Wallace Sterling Lifetime Alumni Achievement Award* from the Stanford Medical Alumni Association; and, on October 11, 2002, the USU President announced the establishment of *The Norman M. Rich Department of Surgery*. Doctor Rich has earned international recognition for his work, lecturing in more than 35 countries; he has published over 300 manuscripts and has been the author or co-author of five books. He has held multiple leadership positions in a variety of surgical societies; he is also a member of numerous international surgical societies; and, he has received Honorary Medical Degrees and Professorships from universities in more than five countries. After 28 years at USU, Doctor Rich has succeeded in establishing an outstanding educational program for the USU SOM students; in addition, under his leadership, surgical skills laboratories, simulation training, and virtual trainers have been incorporated to provide surgical training that is recognized both nationally and internationally; and,

2004 **Cinda Helke, Ph.D., Professor and Associate Dean for Graduate Education,** received the Carol J. Johns Medal, during the 2004 USU Commencement Ceremonies, on May 15, 2004. Dr. Helke, a biomedical research scientist, medical educator, and academic administrator, made significant research contributions to understanding how the nervous system influences cardiovascular function in health and in diseases such as diabetes. She published over 120 research papers and book chapters, presented her research work in numerous seminars nationally and internationally, and received 22 years of continuous funding for her research from the National Institutes of Health (NIH). Her skill as a lecturer and teacher of Pharmacology to medical students at USU was recognized by many teaching awards from the students. She directed the Neuroscience Graduate Education Program, developing it into a model interdisciplinary doctoral program. In her most recent position as Associate Dean for Graduate Education, she was a constant champion for the needs of graduate students, a driving force for providing excellence in their training, and a dedicated promoter for the growth, diversity, and modernization of the USU Graduate Programs. She was born in Iowa and graduated from the Creighton University School of Pharmacy and received her Ph.D. in Pharmacology from Georgetown University, in 1978. After a postdoctoral fellowship at the NIH, she joined the USU faculty, in 1980, where she attained the rank of Professor in 1988. Her professional memberships included the American Society of Pharmacology and Experimental Therapeutics, where she served as Secretary-Treasurer; the Society for Neuroscience; the International Society of Autonomic Neuroscience; the American Diabetes Association; and, the American Association of Medical Colleges Graduate Research and Education Group. Dr. Cinda Helke died, on June 13, 2004, of cancer. She is greatly missed by her USU family.

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The Curreri Award.

Background. Following his retirement as the first University President in November of 1976, **Anthony R. Curreri, M.D.,** was awarded the Department of Defense (DoD) Distinguished Public Service Award. The DoD award, presented in 1977, cited Dr. Curreri for "collaborating with the military departments and for the development of the overall objectives and goals of the University to develop and implement an educational system of the highest quality to serve the physician manpower needs of the military services." The 1996 Graduating Class, of the School of Medicine, established the Curreri Award to recognize exceptional contributions to the continuation and well being of the University and to memorialize the leadership of Dr. Curreri as USU's first President. Since the initial award in 1996, all of the graduating classes (SOM, GSN, and Graduate Education) have participated in selecting the recipients of this award. Doctor Curreri was awarded an Honorary Degree, posthumously, on January 10, 2002, by the USU community.

Recipients of the Curreri Award:

1996	**Vorley M. (Mike) Rexroad, BG, U.S. Air Force (Retired);**
1997	**John Dressendorfer;**
1998	**Lorraine B. Sanford;**
1999	**Charles C. Partridge, COL, USA (Retired);**
2000	**Enrique Mendez, Jr., M.D.;**
2001	**Frederic G. Sanford, M.D., RADM, MC, USN (Retired);**
2002	**Barry W. Wolcott, M.D., COL, MC, USA (Retired); and,**
2003	**The Honorable Robert E. Anderson, M.D.**
2004	**(*The award was not presented during 2004*)**

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The Packard Lecture.

Background. The Packard Lecture Series was named in honor of **The Honorable David Packard** (September 7, 1912 - March 26, 1996), distinguished friend and supporter of the University. Mr. Packard was the Deputy Secretary of Defense, when USU was created in 1972. He served as the first Chairman of the USU Board of Regents; and, he was the Acting President of the University, from 1976 to 1981. Mr. Packard also served as the first Chair of the Council of Directors of the Henry M. Jackson Foundation for the Advancement of Military Medicine, for over six years. The USU Faculty Senate established the Packard Lecture, in 1985, to annually honor individuals who have made significant contributions to the military medical community; it is considered among the greatest honors bestowed by the USU faculty.

The David Packard Lecture Series:

1985	**Enrique Mendez, M.D.**	***Teaching Humanism to Medical Students***
1986	**Joshua Lederberg, Ph.D.**	***The Complexity of Biological Systems***
1987	**C. Everett Koop, M.D.**	***The Fight Against AIDS***
1988	**Robert Petersdorf, M.D.**	***Some Issues in Graduate Medical Education***
1989	**ADM James Watkins, USN**	***AIDS, The Political, Ethical and Social Aspects***

1990	**Arnold Relman, M.D.**	***Scientific Misconduct***
1991	**VADM James A. Zimble, MC, USN**	***Navy Medicine Goes to War, A Time For Evaluation, Reflection and Discussion***
1993	**Philip R. Lee, M.D.**	***Re-Inventing Public Health***
1995	**David A. Kessler, M.D.**	***Accelerating Approval for Drugs for Serious and Life Threatening Diseases***
1996	**Joseph A. Califano, Jr.**	***Radical Surgery: What's Next for America's Health Care***
1997	**Michael DeBakey, M.D.**	***History, the Torch that Illuminates Lessons from Military Medicine***
1998	**Francis D. Moore, M.D.**	***New Kinds of War: New Kinds of Peace***
1999	**Senator Nancy Kassenbaum Baker**	***The Federal Advisory Committee on Gender Integration Training and Related Issues***
2000	**David P. Stevens, M.D.**	***The Future of Medical Education: Bytes, Ticks and Finding Your Way***
2001	**Wayne T. Hockmeyer, Ph.D.**	***Perspectives in Biotechnology***
2002	**Kenneth M. Ludmerer, M.D.**	***The Coming of the Second Revolution in Medical Education***
2003	**(Not Presented During 2003)**	
2004	**Kenneth I. Shine, M.D.**	***Advances in Crossing the Quality Chasm***

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TEACHING AND RESEARCH SUPPORT

Background. The activities organized under the Office of the USU Vice President for Teaching and Research Support (TRS) were originally established as part of the School of Medicine (SOM). As the University's activities and programs expanded to include the Graduate School of Nursing, Continuing Education for Health Professionals, and the Armed Forces Radiobiology Research Institute, it became apparent that the central support functions of TRS were no longer limited to the SOM. As a result, the TRS activities were moved from responsibilities designated to an Associate Dean, in the SOM, to a University Vice President. As this evolution occurred, it was also determined that these activities should be called Centers to more accurately reflect their missions as central resources for USU. The TRS Centers, during 2004, included: the Audio Visual Center; the Center for Multidisciplinary Services; the Learning Resource Center; the Center for Informatics in Medicine; the Center for Laboratory Animal Medicine; the Center for Environmental Health and Occupational Safety; and, the Information Services Management Center.

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The Audio Visual Center.

Pictures are stored and recalled by the mind, instantaneously and intact without reprocessing, therefore, providing more effective and complete information retention and recall. By contrast, text-based information is converted by the mind from a language-base into conceptual ideas for retention, and later converted back to a language base for recall as text or voice.

\- **Ralph Norman Haber,** *How We Remember What We See*, Scientific American Magazine, Volume 222, Number 5, May 1970, page 105.

The USU Audio Visual Center (AVC) functions as an essential teaching and research support resource for the USU faculty and staff. It provides support for education and research in the form of medical illustration, computer graphics, still photography, video, multimedia products, and consultation services. ***The Medical Photography Branch*** provides professional photographic services to include: patient photography in a clinical setting; gross specimen photography for Pathology and Anatomy studies; documentation of research projects; and, coverage of University events for public affairs programs. Photographic laboratory services include: custom printing; film processing support; digital image enhancement; traditional slide duplication; flat art copy; small object studio subjects; and, portraiture services. ***The Computer Graphics Branch*** provides graphic art services for charts, graphs, and text of medical/scientific information in journal publication, poster session displays, and 35 mm slides for classroom presentations. Detailed original medical illustrations in full color, or line drawings, are prepared to supplement teaching programs, accompany articles for publication, or illustrate research displayed in poster sessions. A variety of products are designed for Internet and electronic delivery in support of medical education and training programs. Signs, forms, brochures, logos, books, covers, folders, and flyers are also produced in support of academic and administrative functions. ***The Medical Television Branch*** provides studio and remote video tape recording and broadcast services. Extensive editing, titling, and duplication are provided in support of laboratory demonstrations, field exercise documentation, and classroom lectures. Multimedia (CD-ROM/

DVD) production and web page design are also available to enhance course materials and for the distribution of University information.

Support for CFC and other USU Activities. For the seventh time, the USU AVC has received a Department of Defense award for its poster design. This year, the USU poster was awarded second place, in the motivational category. The entry was created by **Mr. Wayne Crawford, Director of the AVC**.

Support for CD-ROM Production. For the third time, in collaboration with the USU Vice President for Administration and Management, AVC developed a CD-ROM version of the *2003/4 Edition of the USU Journal*; the CD-ROM was designed in-house, and replicated through the use of a DoD contract. The electronic format of the USU Journal provides direct and searchable access to the wealth of information provided in the annual edition of the USU Journal. Copies of the *2003/4 Edition of the USU Journal*, in CD-ROM format, were provided to the 329 members of the USU faculty, the USU Board of Regents, the Surgeons General of the Uniformed Services and their immediate staffs, the Commanders of Military Treatment Facilities, throughout the Defense Health Program, the Congress of the United States, and many others; it was also placed on the USU Web Site.

Medical Simulation. AVC is continuing to provide support to the National Capital Area Medical Simulation Center, specifically for its proposed *Wide-Area Virtual Environment (WAVE) Concept*. This project is being designed to simulate real medical environments including bioterrorist attacks, hazardous material spills, and urban warfare.

Digitization. AVC is involved in the digitization of the Department of Surgery's resource archives, including a large collection of 35mm slides and video tapes. This effort will result in providing the Department and USU with immediate access to an extensive library and cost-effectively eliminate the need for future slide and video tape duplication.

Bioterrorism Support. AVC continues to support the University's efforts to combat bioterrorism and weapons of mass destruction threats by documenting and developing support materials designed to educate uniformed and civilian public health communities.

Archiving of Historical Images. Throughout 2004, the Office of Teaching and Research Support, in conjunction with several USU activities, continued the development of a digital archive of historical images for the University. An annotated database of USU's historical images commenced with significant images related to the University's Board of Regents. Thousands of images have been viewed, evaluated, edited, digitized, captioned, catalogued by subject matter, and archived. The current effort is focused on images from twenty-five years of USU commencement exercises.

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Center for Multidisciplinary Services.

The existing general facilities for teaching are excellent. Teaching and research support activities are providing a high quality of service to both academic departments and administrative/support activities.

- *Institutional Resources*, Chapter III, USU Self-Study Report to the Commission on Higher Education of the Middle States Association of Colleges and Schools, prepared for the 2003 Site Visit, page III-12.

On-Going Renovation, Upgrades, and Support for the USU Teaching Mission. By 1996, the USU Center for Multidisciplinary Services (MDL), the USU Faculty Senate, the Offices of the Deans of the SOM and GSN, and the USU President were aware that the teaching tools available in the lecture halls and auditorium required major renovation. Based on surveys of students, faculty, and staff, an engineering design was commissioned to upgrade the equipment; the project was then expanded to include the replacement of both carpeting and seating. The Office of the Vice President for Teaching and Research Support and MDL successfully coordinated a major renovation of the teaching tools in the Sanford Auditorium and the USU lecture halls, during 1998 and 1999. Since then, and throughout 2004, subsequent upgrades of the teaching facilities have been on-going, to include a major purchase of tables and chairs for the teaching classrooms, in September of 2001; and, the obligation of funding for the renovation of Lecture Rooms A and B, during 2003.

Renovation of USU Lecture Halls. All of the USU lecture halls have been designed with the same equipment and controls so that instructors and students can learn one system and move from one lecture room to the next, without having to adjust to unfamiliar teaching tools. The upgraded equipment provides the faculty with a broader range of teaching tools to present their material. On-going upgrades include: 1) the installation of upgraded audio and projection equipment; 2) the provision of computer capability and Internet access; 3) enhanced video capabilities in each room, to include in-house cameras for overflow viewing throughout the campus; and, 4) *smart* classroom capabilities in Lecture Room C, to include video-teleconferencing and a state-of-the-art audience response system. A majority of these upgrades took place, during the summer of 1998; and, equipment installation occurred around class schedules, throughout 1998 and 1999. Similar upgrades are also being planned for the Board of Regents Conference Room, selected conference rooms, throughout the campus, and the Multidisciplinary Laboratories.

Upgrade of USU Conference and Laboratory Rooms. In September of 2000, resources were identified to obtain computer and video projector equipment to upgrade the major USU conference rooms with systems similar to those available in the lecture halls; this upgrading process continued, throughout 2001. During 2002, the MDL procured and integrated eight new LCD projectors for use in the USU laboratories and conference rooms. Because many USU departments have increased their use of computer presentations, during laboratory exercises and lectures, the MDL has been increasing its state-of-the-art computer projection equipment for use by the USU community. This has allowed the instructors greater flexibility in selecting the teaching modality for presenting material to the students. In fact, the MDL ordered sufficient LCD projectors to permanently install one in each teaching area and increase user capability, throughout the USU laboratories and conference rooms; this upgrade was completed, during 2003.

During 2004, ***MDL completed the engineering design phase of an upgrade of the conference and laboratory rooms***, *to include the Anatomical Teaching Laboratory (ATL)*, similar to what has been accomplished within the lecture halls; the proposed upgrade would improve the audiovisual capabilities of each room and would allow flexibility for future requirements as designed in the lecture halls. The control system would also allow the instructors to control various aspects of the audiovisual support, as well as, allow for future upgrades to the equipment. ***The proposed changes to the laboratory spaces also include the flexibility to divide the rooms, which would enable MDL to meet the increasing requirement for small group teaching. In addition, the engineering design would allow the ATL to more efficiently handle multiple teaching requirements, as well as to broadcast dissection demonstrations and other visual teaching aides to the lecture halls***. All of these activities are in compliance with Goal 5, STEWARDSHIP, of the USU Strategic Plan. By upgrading the lecture halls, classrooms, and the auditorium, USU has enhanced its ability to: *provide a quality educational environment for its students, faculty, and staff; conduct continuing medical education; and, sponsor military medical conferences for the MHS in a manner that will enhance the reputation of USU as a premier health sciences academic institution*.

Renovation of the Anatomical Teaching Laboratory. In 1998, it was identified that the working and storage areas and the freezers in support of the Anatomical Teaching Laboratory (ATL) required significant renovation. Following coordination by the Vice Presidents for Administration and Management, Resource Management, and Teaching and Research Support, funding was identified, in September of 2001, for the renovation of the working and storage areas and the replacement of the ATL freezers. Following extensive consultation and planning, by the USU Facilities Division, the Anatomical Curator, and Navy Facilities (NAVFAC), the renovation project began, in December of 2001, and was successfully completed, during 2002. During 2003, designs and cost estimates were coordinated with the USU Facilities Division, the Anatomical Curator, and NAVFAC to upgrade the air handler unit that services the anatomical teaching laboratory; resources were identified and the project was funded, at the end of 2003. During 2004, MDL, the USU Facilities Division, and NAVFAC completed the planning phase for the installation of the new air handler and associated duct system; the entire project was completed, as scheduled, by May of 2005.

Computer Upgrades. In the past, the University utilized oscilloscopes and chart recorders to facilitate the teaching of physiological changes, due to disease and treatment, in the first-year teaching laboratories. These units were failing and replacement equipment was becoming increasingly unavailable. Following the identification of the need to replace the twenty-five-year-old system, ***MDL planned, justified, secured funding for, purchased (during 2000), and installed (during 2001) a system of computer-based teaching workstations at each of the first-year laboratory tables.***

Since the installation of the computers in the teaching laboratories, the USU SOM Department of Anatomy, Physiology and Genetics (APG) has utilized the new resource for laboratory exercises. The students learn to monitor their heart rates and to run a series of experiments studying the changes in heart rates. Once students have become familiar with the basic operation of the equipment, it is used in the advanced cardiac physiology laboratory exercises. Both of these teaching laboratories have been judged to be quite successful by the students and faculty. ***Currently, APG utilizes the computers in three of its four teaching blocks; and, the Department requests utilization for the remaining fourth block, during 2005***. While the computers were purchased primarily to replace the physiological recorders mentioned above, they have become a source of greatly expanded, computer-assisted, teaching applications, in a variety of disciplines.

Through the utilization of the centralized and networked controls of this computer system, a wide variety of demonstrations, laboratory simulations, experimental exercises, and testing procedures are currently being used, or are under development for expanded use, by multiple SOM Departments. These demonstrations, simulations, exercises, and procedures have been found to provide cost-effective, true-to-life, experiences for students that were not formerly available; and, they have been so successful that plans have been made to duplicate the system, throughout the second-year student laboratories. The MDL has received requests from Biochemistry; APG; Neuroanatomy; Microbiology and Immunology; Pharmacology; and, Radiology and Radiological Sciences for the expanded use of this equipment in their laboratory exercises; ***the two Departments of Pharmacology and Microbiology and Immunology began using the computers in their teaching exercises, during the past year. Additionally, this equipment is planned for use in computer-based testing applications***; the Pathology Department was the first to utilize the computers for the testing of medical students. Based upon Pathology's success, APG also began using the computers for testing, during the past year. ***And, the students use the computers as an additional study resource for reviewing class materials and presentations and to prepare for the National Board Examinations***.

During 2002 through 2003, the MDL replaced the computers used for presentations, throughout all of the USU lecture halls; and, in 2003, the University leased an additional fifty computers for use throughout the MDL. These, added to the original fifty, have significantly increased the capability for the instructors to use a broad range of tools for instructing USU students. During 2004, the MDL began replacing the computers used for presentations in the conference rooms.

Scheduling of Room Requests for the University. Throughout 2004, the MDL managed and supported over 3,000 room requests for teaching and meeting requirements; many of which were for multiple rooms over numerous timeframes. Support was provided by the MDL staff for several international conferences and workshops. In addition, there was an increase in teaching room requirements for small group teaching space, which necessitated MDL's use of a wide variety of space in meeting those needs. The MDL continues to provide top-notch service to faculty, students, and staff at USU and to meet the needs of the military medical community for space and teaching support.

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The Learning Resource Center - Globally Available.

The Learning Resource Center staff is highly trained and knowledgeable and is responsive to the needs of students and faculty... The LRC staff is effective in meeting the changing demands of the University community. ***They have blended the traditional print resources with the electronic versions to achieve a broader scope of information that is accessible worldwide.*** **The growing collection of unique web-based resources will enhance the University's position in the academic world.**

The physical library is well maintained and cataloged. In conjunction with its mediated database and interlibrary loan services, it provides ready access to biomedical and clinical information in support of educational programs. A variety of computerized web-based resources supports information retrieval and management, and offers students opportunities for self-paced learning. The LRC has also made a strong commitment to working in teams with the academic departments to develop programs and services to better serve its user populations.

- *Institutional Resources*, Chapter III, USU Self-Study Report to the Commission on Higher Education of the Middle States Association of Colleges and Schools, prepared for the 2003 Site Visit, page III-14.

World-Wide Access for Health Sciences Information. The Learning Resource Center (LRC) ensures that students, faculty, alumni, and other members of the USU world-wide community can continuously access current medical information, twenty-four hours a day, seven days a week, through its electronic knowledge-based resources. LRC customers are provided immediate access to material on new or alternative treatments, diagnostic tests, background information for a student's case presentation, practice of evidence-based medicine, or a literature search in preparation for a research article or grant, whether or not the LRC is open.

Since its establishment, the LRC has succeeded in providing both an outstanding learning environment and state-of-the-art educational tools for the USU students and faculty. Following the retirement of **Chester J. Pletzke, Founding Director of the USU Learning Resource Center,** during 2002, a Nation-wide search was conducted by the University. In mid-November of 2002, **Ms. Ursula Scott was selected as the Assistant Vice President for Learning Resources.** In this position, Ms. Scott focuses on the LRC's Extramural Program and outreach projects; **Ms. Janice Powell Muller serves as the Director of Campus Learning Resources.**

Throughout 2004, the LRC continued to ensure that its electronic resources were globally accessible; the LRC assisted 7,980 registered customers by making current, medically-related information available, via the Internet. Unique gateway software enabled users to access on-line health care information from Kosovo, Japan, Iceland, Bosnia, Germany, Italy, the United Kingdom, Turkey, Saudi Arabia, on board ships traveling around the World, and from sites located throughout the United States. Selected examples of the LRC customer base include: all four classes of USU medical students; USU alumni; Graduate School of Nursing students; distance learning students; USU faculty, both on and off campus; nurse practitioners and registered nurses throughout the Military Health System (MHS); and, the Office of the Secretary of Defense. ***In 2004, 7,980 users requested 5,400,000 pages.***

User-Friendly Access.

The Learning Resource Center is noted as one of the best assets of the University by both faculty and students. A recent faculty survey revealed the majority of both on- and off-campus respondents to be satisfied or very satisfied with library services. Students are consistent in their praise of the facility and of the accessibility and helpfulness of the staff.

- **Report of the Evaluation Team, Commission on Higher Education of the Middle States Association of Colleges and Schools**, April 2, 2003.

The LRC's Physical Plant Has Continued to Evolve.

- ***Copyroom Established.*** Following the relocation of the circulation/information desk to the front entrance of the LRC, during 2003, the former site was enclosed and transformed into space for the LRC photocopiers and microfilm/microfiche reader/printers. Copiers, which had formally occupied an open area across from the circulation desk, were moved inside a newly constructed copyroom. Enclosing the copiers successfully prevents noise from escaping into the library, and LRC patrons can now research and study in a quiet environment.

- ***Elevator Renovation.*** In the late Fall of 2003, and continuing into the early Spring of 2004, the LRC's aging elevator was renovated. Patrons can now be assured that they can travel smoothly and safely between the floors of the library.

- ***The Construction of a New Office.*** An office was constructed, in early 2004, to provide the Assistant Vice President for Learning Resources with space to focus on the LRC's Extramural Program and projects.

Interlibrary Loan. The number of materials requested from other libraries for USU patrons has steadily increased. ***During 2004, 3,795 articles or books were requested by the LRC from other libraries***, which is an increase of 995 items over 2003 (*in 2003, there was an increase by 1,100 items over requests made during 2002*). This increase can be explained by the ease of ordering documents through *PubMed* via *LoanSomeDoc*. The LRC's focus on patron education, through outreach programs and instruction, has resulted in the LRC customers becoming more cognizant of the materials available both at the LRC and at other libraries. The LRC continues to be a member of ESE/A, a consortium of *Docline* libraries in the National Network of Libraries of Medicine Southeastern/Atlantic Region, which provides free, electronic delivery of interlibrary loan documents, within 48 hours. ***The LRC is pleased to report that most loans are filled within a four to six hour window***, with a high percentage of the items being scanned and electronically filled.

The ***LRC filled 5,212 requests from other libraries for books and journal articles, in 2004***, which is slightly less than the 5,358 requests filled in the previous year. Requests are generated from local hospitals, universities, and medical schools, as well as the National Institutes of Health (NIH), the Walter Reed Army

Medical Center (WRAMC), and military medical facilities around the world. The LRC is also able to reach many physicians, nurses, students, and patients by providing requested medical articles through their local, medical, or public libraries.

Reference Services. The LRC reference services were greatly expanded, in 2004. ***A new user education/reference librarian enabled the LRC Reference Department to expand the types of classes and instruction, which were provided to over 1,050 patrons, during 2004***. A series of ***Brown Bag Sessions*** were instituted with classes in *EndNote* and *PubMed* being taught each month; other Brown Bag Sessions included: *EndNote Special Features*; *Alternatives in Animal Research*; *Search Strategies*; and, *Introduction to LRC Resources*. USU librarians coordinated the celebration of ***Health Literacy Month*** with their counterparts at the National Library of Medicine by presenting a lecture on the *Medline Plus* Database at the LRC. ***The reference librarians also taught seven classes to Patient Safety Officers from the Department of Defense on the use of the LRC's Remote Computer Services***, which included going off-site for one of the sessions. A class on *Evidence-Based Public Health Resources* was also presented to graduate students studying public health.

This year, the LRC reference staff conducted a tour and provided an introduction to the LRC resources for the in-coming Graduate School of Nursing (GSN) students. The staff's commitment to user education resulted in a three-hour *Class on LRC Resources and Search Strategies* provided to GSN students in Research Methods. Classes were also taught on *Literature Searching* and *EndNote* to graduate students in Preventive Medicine and Biometrics (PMB). In addition, a special *Class on PubMed and LRC Resources* was taught to summer interns associated with the USU Center for Health Disparities Research and Education.

The LRC took an active role in the University's Research Day by assembling a booth and providing materials on the library's information resources to the participants. The first ***LRC Faculty/Staff Open House*** was hosted, during 2004, with over 50 USU faculty and staff in attendance. During the Open House, the staff showcased the LRC's new web page and presented sessions on *LoanSomeDoc*, *Current Contents Connect*, and searching *MESH/PubMed*. In addition, the reference librarians attended staff meetings in the USU SOM Departments of Medicine and Surgery, in order to showcase the LRC resources and new products.

The reference staff assisted in redesigning the new LRC web page and developed several instructional modules, including a *viewlet* on ordering documents through *LoanSomeDoc*, which were added to the web page. The Reference Department also participated in the SOM's second-year *Bioethics Class* by facilitating discussions and working with students on finding resources for their papers. Reference guides were created for the GSN on: *Genetics and Cystic Fibrosis and Women's Health* and placed on the LRC's web page. A reference guide was also created to help researchers conduct literature searches; and, several literature searches were performed for researchers preparing animal protocols.

Remote Computer Services. Since its establishment, the LRC continues to diversify and update its resources to meet its customers' changing requirements. New proxy technology improved the reliability and compatibility of remote access to the LRC's electronic collection. ***This same proxy technology was extended to provide customized journal collections to partnering institutions and affiliates. Selected journals, once restricted to campus, became available remotely.*** Remote Services added support and instructions tailored to various browsers. The Remote Services administrative databases were redesigned; as a result, better reporting functions offer administrators improved usage data for making decisions.

Electronic journals are now more directly linked to content than ever before, thus saving search time for the customers.

Computer Classroom/Laboratory. The LRC's computer classroom provides 40 workstations, to include an instructor's station. When it is not being used for classes, the laboratory is utilized by individual students for assignments and electronic activity. ***The LRC Computer Classroom hosted 4,215 students, with 414 contact hours, during 2004, with twenty to thirty sessions per month***. LRC staff reserve, prepare, and provide technical assistance for these classes. The classroom was used for academic instruction with hands-on practice by the following USU activities: 1) Departments and Programs in the SOM (Biomedical Informatics; Dermatology; Family Medicine; Medical and Clinical Psychology; Molecular and Cell Biology; Pharmacology; and, Preventive Medicine and Biometrics); 2) the Graduate School of Nursing; 3) Faculty Development; 4) Contracting; 5) the Learning Resource Center; 6) Finance; and, 7) University Information Systems. In addition, the Graduate School of Nursing and the SOM Departments of Pathology and Dermatology made extensive use of the classroom for on-line examinations and quizzes.

Library staff members taught sections in *Introduction to Computers for Molecular and Cell Biology*, *Computer Fundamentals for Master of Public Health*, *Nursing Research*, *Educational Methods*, *PubMed*, and numerous faculty development seminars and student, faculty, or staff orientations. In addition to the computer classroom, there are approximately 50 additional computers available in the LRC for student and faculty use. While the majority of computers are PC's, the LRC does provide 23 MacIntosh computers. There are heavy-duty printers, scanners, and CD burners, along with special software packages, which can also be used for educational purposes.

Microcomputer Help Desk. Members of the LRC's Applied Medical Informatics Branch staff the help desk. They answer technical questions in-house, on the telephone, and from e-mails sent by clinical faculty, students, and researchers on assignments around the World. The help desk not only supports the computers in the LRC, but also provides assistance to patrons experiencing problems related to the Remote Computer Service. The help desk is part of an effort to provide extraordinary customer service, as well as, to assist students in becoming *computer literate*, as appropriate.

Internet Information Resources During 2004. Throughout 2004, the LRC staff continually updated and refined the RCS database, which gives thousands of patrons access to electronic medical and military resources, over the Internet. With nearly 7,000 electronic books, journals, and databases available to LRC users, making certain that all links are accurate, and holdings are complete, requires extensive manpower.

1) ***Books.*** Standard textbooks are available in all major medical specialties. All electronic editions are constantly updated; and, thus provide the most current information for the practice of health care. ***Currently, there are more than 308 full-text electronic books available, through the LRC.*** These include such familiar titles as: *Harrison's Principles of Internal Medicine*; *Scientific American Medicine*; *Cecil's Textbook of Medicine*; *Current Medical Diagnosis and Treatment*; *Sabiston's Textbook of Surgery*; *Conn's Current Therapy*; *Nelson's Textbook of Pediatrics*; *Merritt's Textbook of Neurology*; *Griffith's 5 Minute Clinical Consult*; *The Washington University Manual of Medical Therapeutics*; *Campbell's Urology*; and, *Danforth's Obstetrics and Gynecology*.

2) ***Journals.*** Conversion to the electronic editions of health-related journals, or periodicals, continued throughout 2004. ***The LRC currently has 7,000 journal titles available on-line, in full-text, to assist its users.*** Publishers continue to expand their on-line offerings; and, the LRC provides access to as many of these as possible. Some titles are subscribed to individually, but most are accessed through collections including: *Elsevier's ScienceDirect*; *Blackwell's Synergy*; *Ebsco*'s various medical and nursing collections; *Kluwer*; *Gale*; *Ovid*; and, *Wiley*. In addition to titles from which the RCS user can download articles at his own computer, there are hundreds of titles from which articles are printed on a pay-per-view basis by an LRC staff member. The LRC has access to hundreds of titles from a growing list of providers: *Docurights*; *Ingenta*; *Taylor and Francis*; *Sage*; *Karger*; *Ovid*; *Highwire Press*; and, *Springer*. ***By offering articles to the less frequently used journals on a pay-per-article basis, the LRC has managed to preserve access to the more heavily used titles, despite continued price increases***.

3) ***Databases.*** The LRC's ***Remote Computer Services (RCS) offers access to approximately 80 electronic databases and other resources for research and learning***. In 2004, the LRC expanded access to the extremely popular *UpToDate* database, to include two years of residents. Access was continued to such vital medical resources as: *MD Consult*; *Micromedex*; *PsycInfo*; *Medline*; *CINAHL*; Evidence-Based Medicine Reviews; *HaPI*; and, *Current Contents*. *Tomes Plus* has been added to the LRC *Micromedex* subscription. The LRC discontinued its use of the *Knowledge Finder* search engine, but added enhanced support for *PubMed* and *Ovid* search tools. Students can prepare for their Medical Boards by using *Exam Master USMLE Step 1, 2, & 3* programs, which simulate the tests that they will experience.

Archival Collection for Preserving the University's History. The primary functions of this LRC branch are: to preserve, arrange, and describe items of significance to USU history and rare collections; and, to provide world-wide access to key documents for research, via the Internet. With the advice and financial support of senior management, along with **Val Hemming, M.D., Professor and Dean Emeritus, USU School of Medicine,** and the USU SOM Department of Medical History, the LRC continues to make great strides in implementing an archival program for the University. The Archival Collection has received donations from USU faculty members and administrators, since its establishment. These collections provide invaluable historical information on the significant activities of USU and include materials from **James A. Zimble, M.D., Past President of USU**, USU Faculty Senate minutes and papers, select AFRRI papers, USU Graduation information, and other sources. A significant collection of papers from the Society of Medical Consultants of the Armed Forces (SMCAF) was also obtained; it includes meeting minutes and materials, as well as the papers and oral histories from prominent members of SMCAF. Standard archival procedures for organization and storage are employed; documents are stored in acid-free document cases, ensuring their availability for future researchers. Search aids, including the use of specialized computer databases, will facilitate easy access for future researchers; holdings currently consist of 70 linear feet of space.

A Digital Archival Collection. A significant accomplishment of the LRC Archival Collection was the development of a digital archival system. This program was first conceived, during the Summer of 1999; and, it has grown into an expanded electronic collection of over 200 historical documents available through the LRC web site.

Historical military medical government documents already owned by the LRC are being scanned into *Adobe's Portable Document Format* (PDF) for universal use. When possible, *Optical Character Resolution* (OCR) is being used to make the documents fully searchable, in both MacIntosh and PC format,

while maintaining the page format of the original. This special project includes documents from the Civil War through the Korean War.

In addition to historical documents, USU theses and dissertations have been digitized. Graduate School of Nursing theses, written since 1998, and SOM Graduate Education dissertations and theses, written since 1997, are the first to be included. Any current, or former students, who have written theses or dissertations for USU, are encouraged to submit an electronic format of their work to the LRC archival collection. It will be converted to PDF format and placed on the web site. ***Thus, world-wide access to the research findings of USU students will be available, which will showcase their work. To date, there are over 225 theses and dissertations on-line***.

This year, the Archives began digitizing ***Editions of the USU Journal***, which are currently available in PDF format, going back to 1994. The file sizes for these documents have been reduced to the smallest possible size without significant reduction in quality for faster download. The LRC will also be adding more University-related documents, throughout the year, making many of the important University documents globally available, twenty-four hours a day, seven days a week. All of these items will be linked from the Archive's web site for ease of access.

The Archives also maintains a bibliographic database of the USU faculty publications, which is updated weekly and goes back to 1974. Currently, there are more than 14,000 journal and book citations in the database. All of the LRC electronic resources are available at <*http://www.lrc.usuhs.mil/scripts/pli/lrcsub.cgi?P=archives*>.

FACTS.

Collections:	
Print Volumes (Book and Journal)	150,863
Electronic Book Titles	308
Print Journals	760
Electronic Full-Text Journals	7,000
Audiovisuals	43
Educational Software	65
Electronic Databases	530

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Learning Resources Center - Extramural Activities.

National and International Visibility for the LRC. The visibility of the University and the LRC was greatly increased within the military libraries and the medical library communities, during this past year. In February of 2002, **Ursula Scott, Assistant Vice President for Learning Resources,** was elected to serve a three-year term, beginning in May of 2003; she served, or will serve, as Chair-Elect (2004), Chair (2005), Past Chair (2006) of the Federal Library Section of the Medical Library Association (MLA); she is also active in other national organizations. Ms. Scott is a member of the National Program Planning Committee for several section programs of the Medical Library Association 2005 Annual Meeting. Additionally, in collaboration with the National Library of Medicine, she is involved in planning an all-day continuing education seminar, ***The Role of Information Services for Emergency Preparedness and Response***, to be held in San Antonio, Texas, in conjunction with the Annual Meeting of the MLA.

The visibility of the University to military librarians was increased with the extension of an invitation to host the Military Librarians Workshop, at USU, in 2007. This workshop will consist of a one-week conference, including training classes, of the Military Librarians Division of the Special Libraries Association. In addition, during May of 2004, a group of military medical librarians visited USU, the Patient Simulation Laboratory (PSL), and the LRC. This tour was in conjunction with the Medical Library Association Meeting held in Washington, D.C. And, Ms. Scott coordinated the local hosting of a Webcast from the Medical Libraries Association, ***Tips for Negotiating Electronic Licenses***; it was attended by both librarians and contracting officers.

The library has expanded its national presence by joining a number of organizations and associations. The *BioMed Central* membership allows any researcher or student, at USU, to publish an unlimited number of research articles in journals published by *BioMed Central*, without paying article processing charges. The LRC joined the Association of Academic Health Sciences Libraries (AAHSL), which is comprised of libraries of accredited United States and Canadian medical schools belonging to the Association of American Medical Colleges (AAMC). Ms. Scott also submitted statistics of the LRC to the *Annual Statistics of Medical School Libraries in the United States and Canada*. The LRC, or individual staff members, have continued membership in the Medical Library Association, the American Library Association, the Special Libraries Association, *FEDLINK*, *OCLC*, and a regional consortium, *Palinet*. And, significantly, the LRC has continued as a full member of the National Network of Libraries of Medicine, which is sponsored and supported by the National Library of Medicine.

Support to Military Medical Libraries and Institutions. The LRC has a program to provide access, for medical and research personnel from United States military agencies, to electronic knowledge-based information, via the LRC's Remote Computer Services (RCS). This allows members of these groups to do their work better, faster, and more efficiently, because they have access to the most current information, via a single interface. This enables libraries and groups, which do not have technical computer staff, to access their own subscriptions, through customized web pages and interactive databases. Registered members of these groups have individual IDs and passwords for accessing their electronic books, journals, and databases.

Two new features were added for the Affiliates. ***This year, usage statistics began to be regularly provided, on a quarterly basis, to the LRC Affiliates***. Each library Affiliate now has its own library information displayed on the opening RCS page, to include the telephone numbers of its major service areas, hours of service, and web site.

In 2004, ***great strides were made to develop new business procedures; these were coordinated with the staff of the USU Vice President for Resource Management. New dynamic spreadsheets were developed to provide the Affiliate libraries with information about their subscriptions and related costs***. Most subscriptions and receipt of funds were included through a cycle process, which enhances the coordination of contracts for the Affiliates and the LRC, and facilitates efficient coordination between the LRC and the USU Offices of Contracting and Financial Management.

Another advancement was the revision of the wording and format of the Memorandum of Understanding, which will be used for work performed for the Affiliates; a formal business plan was also developed. This occurred due to requests for service from Navy Medicine and the Naval Hospital in Naples, Italy. The structuring of the proposal to Navy Medicine was a departure from previous proposals due to the large number of individuals requesting service, which required new methods for conducting business; these proposals were unsolicited. ***Knowledge of the usefulness of the system is spreading; the challenge, during the past year, included dealing with vendor license agreements for both USU and the Affiliates***.

One of the major projects, during 2004, was to obtain a site license for the ***New England Journal of Medicine***, one of the best-known medical journals. The site license could include the entire Department of Defense. Technical issues had to be worked out to ensure that access was as seamless as possible for the user and to restrict labor requirements for the LRC staff. ***To date, the Army and Air Force have joined in sharing the cost of this license, which has expanded the visibility of USU within all of the military medical Services***. As a service to both the Affiliates and USU patrons, several web pages were developed. The *News* and *Travel* pages link to both major news and government sites. The *News* page includes links to the Food & Drug Administration, the Centers for Disease Control and Prevention, the *Federal Register*, military newsletters, and USU news pages.

The Naval Medical Center, at Portsmouth, the Medical Services of the Department of State, and Partners for Peace Information Management continued their agreements to compensate USU for enabling their members to use the USU RCS for accessing electronic resources; researchers at these facilities were better able to collaborate with USU faculty, through common access to electronic knowledge-based resources. Other military groups, associated with USU, are the interns and residents of the National Capital Consortium (NCC), the DoD Patient Safety Officers, and members of the Pentagon Force Protection Agency; these groups also gain access to electronic resources, via the USU RCS.

As the number of resources increase, USU is becoming an integral part of the knowledge operation of the Affiliates being served. The Walter Reed Army Institute of Research (WRAIR) and the United States Army Medical Research and Materiel Command (USAMRMC) continue to increase the number of resources accessed through the RCS. ***WRAIR, USAMRMC, and USU each save funding by jointly purchasing subscriptions and/or jointly negotiating with the vendors. Through their affiliation with USU, both USAMRMC and WRAIR are able to share in electronic purchases; thus, members from all three organizations receive a broader group of electronic books and journal articles***.

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Informatics - An Expanding and Essential Component of Education in the Health Sciences.

Background. Efforts in computer-assisted instruction as a study aid for USU students have been ongoing, since 1979, when a series of medical students developed, in Apple Pascal, the first drill and practice question bank within the SOM. Course directors provided questions entered into the University Board Review System. In succeeding years, several departments (*Biochemistry, Pathology, Pharmacology, and Physiology*) developed their own on-line examination archives or examination item databases, which have been well received by the students. Over time, this type of material was delivered to students first on stand-alone computers, then on networked computers (*HyperPharm, HyperRenal, and others*) and most recently as world-wide-web (WWW) based sites accessible, both inside and outside, of the University by students in the SOM Departments of Biochemistry, Pathology, Pediatrics, Pharmacology, and Physiology and the GSN Master of Science in Nursing (MSN) students. One of the most ambitious of these efforts has been the Biochemistry question database of examination questions for testing, which was developed between 1991 and 1996. This archive is available at <*http://bob.usuhs.mil/biochem/exams/exams-f.html*>.

Innovative Web-Based Study Aids, Teleconferencing Sessions, Exercises, and Course Administration. Image-based study aids have been developed by the USU faculty. The earliest of these efforts were Radiological Anatomy, Neuroanatomy, and Chest Film Review laser disc programs developed and deployed, between 1985 to 1995, by the Department of Radiology and Radiological Sciences. In 1996 and 1997, this material was also made available to students as CD-ROMs; and, in 1997, the material was migrated on the WWW at <*http://rad.usuhs.mil/rad/edu/edu.htm*>. ***The Department of Radiology and Radiological Sciences has established collaborative efforts with faculty at the Mayo Clinic Foundation and Emory University, which provide USU medical students access to the Visible Human data set***. Both SOM and GSN students utilize this resource. Another effort encourages the students to draw correlates between anatomy, physical diagnosis, clinical neurology, and radiology.

USU uses interactive, real-time video teleconferencing to link five different sites for its six-week ***Clerkship in Obstetrics and Gynecology***. In sessions that last from 60 to 150 minutes, site coordinators meet with the clerkship directors and administrative personnel to discuss such crucial issues as curricula, student problems and evaluation, and faculty development. Since the sessions began, in May of 1998, USU has found that the sessions enable the standardization of curricula, facilitate the sharing of ideas, reduce administrative tasks through centralized support, and improve the meaning, consistency, and level of detail in student evaluations. (*See Section II, Third-Year Curriculum for additional information.*)

The ***Physiology Course*** (*Graduate Education and SOM first-year students*) provides an acid/base game in which students diagnose an acid/base disorder from patient data on a Davenport diagram, treat the disorder, and see what the treatment does to the patient. Other exercises include body fluid compartments and Yannet-Darrrow diagrams, and the control of glomerular filtration, Tm and the countercurrent mechanism. These exercises are treated as a regular laboratory in the course. The ***Pharmacology Course*** (*Graduate Education, GSN, and SOM second-year students*) has included a computer-based pharmacokinetics simulation exercise and a computer-based drug information exercise, as integral parts of the course for the last 17 and 12 years, respectively. These exercises, designed by USU faculty, are conducted individually by students or in small groups in the Learning Resource Center (*Nurse Anesthesia, Graduate Education, and SOM second-year students*).

Over the past seven years, on-line quizzes and formal examinations have become more widely used by both the SOM and the GSN. One of the first, routine on-line quiz at USU was introduced, during

1999-2000, in the Department of Medicine's (MED) ***Clinical Concepts Course***. Subsequently, similar quiz material was introduced in MED's ***Introduction to Clinical Medicine***, ***Biomedical Informatics***, ***Radiology and Radiological Sciences***, and the ***Health Service Administration Division of Preventive Medicine and Biometrics Courses***. The GSN ***Pharmacology Course for Nurse Anesthesia*** students introduced formal examinations as an on-line exercise, during the 2000-2001 Academic Year. This effort continued, during 2003, and was expanded to other GSN courses. The GSN intends to move most formal examinations to an on-line format; ***the SOM Department of Pathology completed a conversion from paper-based formal examinations to on-line examinations, during 2004***.

The USU SOM Department of Medicine has introduced a widely used innovation in course administration. *CWebLog* is a WWW-based database for logging students' clinical experiences, during the medicine clerkships. As students submit data, they may be presented with a set of reviewed links related to the type of case they are reporting. Student entries are stored in an SQL database that is used to produce browser-based reports on any combination of clerkship experiences. A preliminary description of this project has been published and is described at: <*http://cweblog.usuhs.mil*>. Over subsequent years, all of the seven SOM clerkships have adopted *CWebLog* as one means of recording student experiences in the clinic. The project was expanded to include the collection with PDAs (*the* ***Portable Digital Assistant (PDA) Initiative*** *is discussed under The Department of Biomedical Informatics, which follows in this section*). Data from these devices is synchronized to the same SQL database as is data from personal computers and a web browser. The GSN Nurse Practitioner faculty use a similar WWW or Portable Digital Assistant (PDA)-based system and the GSN Nurse Anesthesia faculty utilize data collection in a spreadsheet format aggregated in their department's office.

MedPix, An Internet Teaching File for the Health Sciences. The USU *MedPix System* was developed to offer medical students, researchers, and clinicians a descriptive on-line database housing medical case examples. The database provides a fully-functional archive of clinical photographs and radiologic images, primarily of abnormal and disease conditions. Today, there is a shared Internet teaching file filled with a variety of illustrated medical cases available to anyone interested in learning more about an affliction or in sharing information and images from cases they have seen. These cases are further complemented with posted summaries, reports and editorial comments. **James Smirniotopoulos, M.D., Professor and Chair, SOM Department of Radiology and Radiological Sciences**, and third-year medical student **Ensign Henry Irvine** originated the USU program as a text-only database with aspirations to develop it into a multi-level program. Instead of using only static web pages, it was decided to use a database and dynamically generated pages. The intention was to allow its users, at remote sites, the ability to add images and cases into the database. The site began with a Radiology intent and has since branched off into the Dermatology and Pathology disciplines. Visitors to the site can also practice identifying ailments by selecting a *hide-text* feature. This allows the user the opportunity to take a self-quiz before the introduction to the actual illness. It is now an impressive site in terms of complexity and depth of resources. *MedPix* is also recognized as a powerful teaching tool for residents. By 2001, Radiology residents were using *MedPix* data for teaching files at such hospitals as the Tripler Army Medical Center, the Naval Medical Center at San Diego, and throughout the National Capital Region. Continuing through 2004, Doctor Smirniotopoulos' Distance Learning Program has provided monthly Neuroradiology Teleconferencing between USU and the Naval Medical Center in San Diego, California. In addition, Doctor Smirniotopoulos has received approval for providing on-line continuing medical education (CME) and continuing nursing education (CNE) through his ***MedPix Radiology Teaching File***; the program provides one hour of Category 1 CME or 1.2 hours of CNE for every four *MedPix* cases. ***To date, MedPix has provided more than 4,000 hours of continuing medical education.*** The *MedPix Database* currently supports all of the DoD Diagnostic Radiology Residency Programs by administering and hosting commonly shared files. ***MedPix has over 15,000 registered users,***

including active duty and civilian personnel world-wide, although registration is not required for simple case review. During 2003, the MedPix database was upgraded to include a secure web server for log-in and user administration; in December of 2004, the server was upgraded and now routinely delivers more than one gigabyte of data each day to more than 7,000 unique web visitors. ***MedPix has delivered more than 20 million pages, since September 3, 2000; and, it is the longest running Case of the Week Program in the world***.

Doctors Reeder and Smirniotopoulos have provided a ***Teach the Teachers*** project, sponsored by an educational grant from the Radiological Society of North America (RSNA), to train 6-8 African Radiologists in Tropical Imaging. This competitively chosen group will spend seven weeks at USU in classroom, small group, and independent study. The radiologists will then return to their home countries to share their experiences at USU. The hardcover textbook for this course is now available over the Internet at <*http://tmcr.usuhs.mil*>.

Compact Disc and Use of Internet Web Site Provide Cost-Effective Assistance. The Department of Pathology has digitized its entire student slide collection of pathological specimens covering all major organ systems, some 1,300 images, used in the MS-II Pathology Course. The images are available to students via the WWW and on compact disc. Directed to second-year medical students, the compact disc and WWW site provide assistance in preparing for pathology laboratories, lectures, small groups and examinations. The Pathology Department also uses the Internet to allow students to review cases on line and to submit a differential diagnosis. Their diagnoses are then incorporated, by faculty, during a didactic presentation of the cases. In addition to the image data bank, the pathology WWW site archives retired examination questions, the SOM Pathology Laboratory Manual, and lecture handouts. The department finds that the compact disc and WWW site increase the accessibility of images to students and result in significant financial savings in duplication costs and personnel time.

Further integrating technology into the Pathology Course, the Pathology Department has developed a data bank of examination questions that are archived and used in testing medical students. All internal examinations are delivered to students via computer using *Test Pilot* software. Gross and histological images are incorporated into the questions. The department's examinations mirror the pathology subject material on the USMLE Step 1 examination. Students receive immediate feedback on their performance when they submit their answers. The use of archived questions has allowed the Pathology Department to compare class performance from year to year, reduce ambiguity in examination questions, save money by not having to duplicate over 800 examinations annually, and maintain security for the questions.

The Department of Pathology also uses Internet technology to provide a web page independent of the University's web site. This page enables students to access information regarding Pathology's educational activities, links them with other medical schools and pathology web sites, informs the public of USU departmental personnel and research activities, and advertises the Pathology Department's Ph.D. Program in Pathology.

eMedicine.com - USU Faculty Help to Revolutionize Medical Textbook Publishing. During 2001, two USU department chairs and many other USU faculty played key roles in a publishing breakthrough that has redefined the way today's health care professionals can obtain timely and critical medical information (a skill which is essential to the medical students' future practice). This publishing breakthrough is called *eMedicine.com*; and, its impact is world-wide. *eMedicine.com*, the medical education network that has developed the first and largest on-line, peer-reviewed medical reference library, is available to the entire

world, free of charge, assuming Internet access. It consists of 59 on-line reference books, covering every medical specialty. Radiographic images, photographs, audio and video clips relevant to each topic are incorporated. Each chapter features 1.5 hours of Category I American Medical Association (AMA) Physician's Recognition Award continuing medical education (CME) credit. There are an estimated 15,000 hours of CME credit. Authors and medical editors are volunteers and are not compensated in any way for their efforts. There is significant supervision of content, with several layers of medical and copy editors to assure accuracy and quality. ***Unlike traditional textbooks, which can be as much as six years out of date at the time of publication, the information in the eMedicine.com chapters is updated 24 hours a day, 365 days per year. If an important new study is published in a journal, the research is immediately included in the on-line textbook***. The United States military is the largest user of the site to date. There are at least five million users per year, and that figure is rapidly increasing every six months. **Leonard Sperling, COL, MC, USA, Professor and Chair, USU SOM Department of Dermatology**, is one of the editors and authors of the Dermatology Textbook on *eMedicine.com*. And, **James G. Smirniotopoulos, M.D., Professor and Chair, USU SOM Department of Radiology and Radiological Sciences**, is one of the editors-in-chief of the Radiology Textbook on *eMedicine.com*. Many other USU faculty members also contribute to this web site.

Virtual Reality-Based Environment for Teaching Clinical Anatomy. *Anatomic VisualizeR* is a virtual reality (VR)-based environment for teaching and learning clinical anatomy, which was initially developed by the University of California, San Diego (UCSD). Educational applications of *Anatomic VisualizeR* have been jointly explored by UCSD and USU. *Anatomic VisualizeR* made its curricular debut outside of UCSD, in 1999, when it was used for teaching two graduate-level nursing Neuroscience lectures; USU was the first school approved to use *Anatomic VisualizeR* outside of the UCSD. The two universities have jointly developed six new lessons. The application is utilized by both the GSN (***Neuroscience and Pathophysiology Courses***) and the SOM (***Introduction to Structure and Function***). *Anatomic VisualizeR* provides a virtual dissection room in which students and faculty can directly interact with three-dimensional models and concurrently access supporting curricular materials. A broad range of virtual exploratory tools enables users to investigate structures in ways not possible in the real world.

The USU Clinical Simulator, Patient Simulator Laboratory, and SIMCEN Present Scenarios Applicable to Combat Casualty Care, Anesthesia, Critical Care, Trauma, and Emergency Medicine. During 1997, the USU Departments of Anesthesiology (ANE) and Anatomy, Physiology and Genetics (APG), in collaboration with the National Naval Medical Center's Department of Anesthesiology, developed the Clinical Simulator and Patient Simulator Laboratory (PSL) located in the USU Department of Anesthesiology. The PSL has evolved into a fully interactive clinical training laboratory, equipped as an operating room with standard monitoring equipment, instruments, life support system, defibrillator, and complete audio/video recording equipment. This instructional facility supports training in combat casualty care, anesthesia, critical care, trauma, and emergency medicine. Students gain experience in recognizing problems, developing decision-making skills, and refining techniques and procedures. ***During 2004, the PSL provided over 600 hours of University-wide support for course offerings***. Throughout the past year, numerous groups of students and medical personnel made regular use of the PSL both as a training facility and as a research resource: 1) **USU First-Year Medical Students - Cardiovascular Physiology.** During the last seven academic years, the PSL has been used as an integral part of the ***Physiology Course*** with the entire class of graduate and medical students rotating, in groups of eight, through a cardiovascular simulation. For these students, the simulator is used to complement a teaching laboratory that demonstrates the basic interactions of heart rate, blood pressure, cardiac output, stroke volume, and circulatory resistance; 2) **USU Second-Year Medical Students - *Pharmacology Lectures* Bring the Hospital to the Students.**

In addition, the PSL provides live, interactive distance education presentations to the second-year SOM students for illustrating simulated, clinical examples, during their Pharmacology lectures; thus, bringing the hospital to the students through the Advanced Distance Education Network (*ADEN*) designed by the PSL staff; 3) **USU Third-Year Medical Students - Two-Week *Anesthesiology Rotation*.** The simulator helps these students to learn the fundamentals of anesthesia; they practice connecting a patient to external life support sources, such as an oxygen mask, a ventilator, or manual ventilation via endotracheal intubation. USU medical students combine the lessons learned about the physiology of gas exchange and physiologic and pharmacologic responses, while actually performing the procedures and administering anesthesia on the patient simulator, without putting a patient, or themselves, at risk; 4) **USU Graduate Students in Nurse Anesthesia in the MSN Degree Program.** USU Graduate School of Nursing (GSN) students undergo basic and advanced simulator training, during which they must handle unique cases with unexpected complications. In the ***Basic Principles of Anesthesia Course***, GSN students use the simulator to practice airway management, interpret EKG patterns, practice line placement, and begin learning anesthesia induction; during the next semester, the simulator is used to expand on these basic skills. Some nurse anesthesia students use the simulator as a laboratory instrument for their required Master Degree Thesis Project; 5) **Walter Reed Army Medical Center (WRAMC) Nurses - *ICU Certificate Program*.** These nurses are exposed to advanced patient care scenarios that include extensive equipment use and critical medical situation training; 6) **Uniformed Anesthesia Residents from Military Centers in the National Capital Region.** These resident physicians are challenged with complex, specifically-tailored medical scenarios, designed to prepare them for dealing with critical, time-sensitive situations. For example, recent, ***incoming classes of anesthesia residents from WRAMC were given an extensive trauma training/ evaluation with the simulator***. When the GSN became concerned that its students were not prepared to deliver anesthesia under austere conditions, because they rarely had an opportunity to work with Field Anesthesia Medicine, the GSN Nurse Anesthesia faculty developed a CD-ROM on field anesthesia, which is now a required part of the GSN Anesthesia curriculum; and, 7) **USAF Critical Care Air Transport Teams.** Once a month, USU hosts an ***Air Force Critical Care Air Transport Team (CCATT) Session***, during which the three-person team treats the simulator as a real case. Practicing nurses, physicians, and respiratory therapists are involved in the CCATT training scenarios. They receive a call that their services are required, gather their gear, leave their hospital (Malcolm Grow Medical Center), travel to the site of the patient (USU PSL), evaluate the patient's condition, and provide sufficient treatment to ensure successful transport of the patient back to a hospital. Once they leave the hospital, they can use only equipment and supplies that they brought with them.

The patient simulator, featured at: <*www.usuhs.mil/psl/*>, offers many benefits to students and instructors. Without putting a life at risk, students can experience handling rare conditions such as malignant hyperthermia, learn to recognize a wide variety of problems, practice using instruments and equipment, develop decision-making skills, and accumulate first-hand experience with military-specific problems like combat trauma. Instructors can tailor each case to individual students, selecting the type, level of speed, and degree of severity according to the student's level of competence. If the instructor wants to give feedback or additional directions, the lesson can be paused and repeated as many times as necessary. Sessions are recorded and played back, enabling the students, with the instructors, to analyze their performance and to recognize their strengths and weaknesses. Because no life is at stake, instructors can purposely push students beyond their competency levels so they can learn and retain critical lessons. The patient simulator is a valuable addition to the USU curricula, one that will play an expanded role in the future; only a small percentage of the 125 United States Medical Schools have patient simulators. Offering the single simulator in the PSL to teach a class size, of more than 165 students, requires complex scheduling. ***During 2000, collaboration between the PSL, the Simulation Center (SIMCEN) at Forest Glen, and the patient simulation facility at the Naval School of Health Sciences (located on the NNMC base) now provides access to a total of 12 mannequins that span the range of ages from newborn to adult,***

both male and female (four at the USU Military Medical Simulation Center (SIMCEN); two at the Naval Medical Education Training Command, located at the National Naval Medical Center; and, six mannequins at the PSL).

The National Library of Medicine and the USU *Internet2* Link for Distance Education. During 2004, the *Internet2* link provided by the National Library of Medicine (NLM) to USU has continued to serve as an invaluable component, in the on-going USU activities for leveraging the power of its simulation-based education programs, in order to reach large numbers of students via its distance education system. ***Live, two-way sessions are now sent between the USU PSL and:*** the USU Lecture Hall E for the first-year medical students; USU Lecture Hall D for the second-year medical students; the National Naval Medical Center/Naval Medical Education Training Command (NMETC) Simulation Facility; the Armed Forces Institute of Pathology (AFIP) Medical Museum in Washington, D.C.; and, St. Francis University located in Loretto, Pennsylvania. Within the past two years, the USU Patient Simulation Laboratory acquired $125,000 in extramural funding for *GigE Network Gear* to extend the NLM-provided *Internet2*, throughout the USU campus and the National Naval Medical Center (NNMC); the PSL is utilizing a $240,000 clinical distant educational grant that will establish the *Internet2* links between USU, NNMC, NLM, AFIP, and the Walter Reed Army Medical Center as a test-case for world-wide telemedicine training and treatment for the DoD clinical community.

A Multi-Disciplinary Approach for Teaching Responses to Weapons of Mass Destruction and Terrorism. Beginning in 2000 and throughout 2004, the USU Patient Simulation Laboratory has provided educational experiences for both clinicians and emergency operations personnel in Weapons of Mass Destruction and Terrorist (WMD/T) scenarios, during a USU SOM Course, ***The Scientific, Domestic and International Policy Challenges of Weapons of Mass Destruction and Terror***. The Course on WMD/T generally includes two modules: *Part I, The Emerging Threat of Biological Weapons and Bioterrorism*; and, *Part II, Nuclear, Radiological, High Explosives, Chemical Agents, and Unusual Weapons*. Simulated scenarios have been designed through the cooperation of experts in bioterrorism, chemical warfare, medical effects of radiation, and trauma. Students who take this course include senior military officers, physicians, nurses, lawyers, career politicians, administrators, and logistic personnel. Part I culminates in extensive simulated crisis events including inhalational anthrax, pneumonic plague, marine toxins, and other biological agents. ***Part II culminates in an intense simulated crisis event involving the terrorist use of chemical, radiological and explosive devices.*** Non-clinical students, functioning as staff in emergency operation commands, embassies, and/or hospital response centers, manage conflicting information from on-scene observers, other agencies, and media resources. Clinical students, functioning as staff in an emergency room, provide direct care of multiple patients presented by both mannequin-based simulators and human actors. Debriefing entails discussions about performance in: leadership and followership skills; team performance and dynamics; communication skills; data management; logistic support; resource allocation; emergency declaration; assessment and reevaluation of situation(s); medical triage; medical diagnosis; medical treatment; containment of outbreak(s) or agent(s); and, appropriate notification of other officials. ***These simulated presentations have received overwhelming approval from the participants as documented in the students' course critiques***. Course instructors have requested continuation of past presentations as well as new scenarios. Crisis Management following a WMD/T attack can be taught using patient simulation as the foundation for the event; and, multi-disciplinary input has resulted in simulated events, which are overwhelmingly accepted by students. This experience allows personnel who will fill positions involving the management of a WMD/T attack to have their *first time for real* through a simulated educational event.

USU Patient Simulation Laboratory Trains the Trainers of the Combat Medical Skills Course. The USU Patient Simulation Laboratory (PSL), in cooperation with the SOM Department of Military and Emergency Medicine (MEM), has instituted a *train-the-trainers program* for the Combat Medical Skills (CMS) annual course for the first-year medical school class. The CMS Course introduces the USU students to medicine at the front line of the battlefield. Since the beginning of the Global War on Terrorism, the military medical commands have been operating as a Joint Services effort, employing military clinicians in many ways, with which, they were not accustomed. In on-going efforts to appropriately prepare the SOM students, MEM has continued to update the CMS Course. As of January 2005, the Tactical Combat Casualty Care handout has been incorporated into the CMS text book. This handout is based upon lessons learned by the Joint Special Operations Forces community. This new information aids those schooled in conventional treatment with an understanding of the similarities and differences between civilian and battlefield casualties. Over a dozen instructors are required to teach CMS. ***To ensure that all of the instructors have a common background, the unique "scheduled disasters" capability of the PSL is used to create hands-on sessions specific to the instructor's training needs***. (*The PSL is discussed in further detail in Section II, MILITARY UNIQUE CURRICULUM.*)

A Virtual Introduction to the Surgical Clerkship. The third-year surgical clerkship is preceded by a three-day introduction to clinical models and operative procedures utilizing the National Capital Medical Simulation Center (SIMCEN) and the animal surgical facilities in the USU Department of Laboratory Medicine. This innovative and comprehensive approach, which occurs with third-year SOM students every six weeks, familiarizes the students with patient interactions associated with the presentation of common surgical illnesses as well as introducing various surgical techniques, priorities, equipment and procedures. The advanced technologies of the SIMCEN employ live patient models well versed in specific disease histories and symptoms. Disease scenarios include common problems such as pancreatitis, appendicitis, ectopic pregnancy, and gallbladder disease. Students perform comprehensive, focused histories and physicals on two to three *patients* under real-time observation by a faculty-teaching surgeon. The encounter is taped for interactive student-teacher reviews, during small group discussions of techniques and performance. In addition to the patient encounters, separate laboratories are held to teach and perform knot tying, endotracheal intubation and ultrasound fast examination techniques on mannequins. A human patient simulator is used to teach acute trauma care, utilizing various scenarios creating positive and negative outcomes to specific student treatment choices. There is also a virtual reality laboratory for the performance of technical skills including suturing and cricothyroidotomy. (*Further information on the SIMCEN and the Third-Year Surgical Rotation is provided in Section II, MILITARY UNIQUE CURRICULUM.*)

Establishment of a Center for Informatics in Medicine. Biomedical data and the field of informatics continue to rapidly expand. Processes of knowledge retrieval and decision-making are critical to the future health care provider. In light of technology's role in knowledge development, biomedical informatics has become an essential component of education in the Health Sciences. Following graduation, health care professionals must be able to use biomedical information to define, study, and solve problems.

In 1996, decisions were made to establish a USU Center for Informatics in Medicine, to be placed under the Vice President for Teaching and Research Support (TRS), as an interim step toward the creation of an academic Department of Biomedical Informatics. From 1997 through 1999, a coalition of CIM, the LRC, and the appropriate Dean's Office (SOM or GSN), initiated steps to prepare incoming USU students for the expanded role of informatics in their studies and professional careers. ***It was recognized that if students are to fulfill the five key roles of health care providers - lifelong learner, clinician, educator/communicator, researcher, and manager - they must have the benefits of a dedicated biomedical***

informatics program. The Center for Informatics in Medicine has enhanced USU informatics research and education through introductory computer courses, a workshop on Internet applications in diagnostic pathology, and the development of such diverse areas as web sites on educational technology, military graduate education, and HIV in the military. During 2004, the Center continued to provide computer orientation courses for faculty and students. ***The Center maintains over 100 educational web sites for the University; these sites serve on-campus and distance students, residents, and faculty***. Highlighted sites include the University's on-line student assessment of instruction (for both the SOM and the GSN). Also provided are self-assessment, surveys, quizzes, and major course examination sites for the following selected examples of USU activities: the Faculty Senate; the GSN VA/DoD Distance Learning Program; the GSN Nurse Anesthesia and Family Nurse Practitioner options in the GSN MSN Program; and, the SOM Departments of: Anatomy, Physiology and Genetics; Medicine; Pathology; Pediatrics; Pharmacology; Preventive Medicine and Biometrics; and, Radiology and Radiological Sciences. CIM continues to have responsibility for video teleconferencing interface at USU; support has been provided to the GSN VA/DoD Nurse Practitioner Program (six sites); the SOM Department of Obstetrics and Gynecology Clerkship Coordinators Meeting (three to five sites); the 8th NASA Medical Topics: Occupational/Environmental Health and Safety Primer and Issues Series; and, a video teleconference between the SOM Department of Pediatrics and Rota, Spain, on a repeating basis.

> **Informatics Education. The doctor is the most highly trained individual in the health care system, and as such it is the doctor who should be the final judge of the data entered into the electronic medical record. If the medical record is also a research tool, then this gives a new responsibility and value added to the physician. Educating medical students to do this well is a major challenge. Students who are not exposed to this type of thinking and practical training in medical school will be at a disadvantage when it becomes the norm, as it surely will.**
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> \- Journal of Investigative Medicine, Volume 46, No. 8, October 1998, page 345.

The Department of Biomedical Informatics. In June of 1998, the Dean, SOM, appointed a committee to assist in creating the Department of Biomedical Informatics; during 1999, the USU Board of Regents approved the creation of the new academic department. ***The SOM's Department of Biomedical Informatics (BID) is recognized as a basic science department with three areas of specialization: bioinformatics, medical informatics, and education***. It serves as a resource center to extend and enhance already strong curricula through departmental and interdisciplinary courses that: integrate basic sciences with clinical experiences; offer simulated clinical training experiences; continue current teaching efforts in introductory computing; and, focus on student-centered learning through case-based, small-group sessions. It also serves as a clearinghouse for USU informatics applications and provides a testing facility for informatics research. The department helps to ensure that all USU graduates have a foundation in informatics that will support them, as career professionals, in the Military Health System. Specifically, the charter for BID includes the following: 1) support for the curricula through educational technology; 2) extension of the curricula through biomedical informatics; and, 3) identification and research of innovative informatics applications for military health care.

Since 2000, the Department of Biomedical Informatics (BID) has been charged to act as a resource center to *support* and *extend* the USU medical curriculum and to act as a *focus* for developmental and research activities in informatics. ***The university-wide operation of the Center for Informatics in Medicine***

has been retained as the department's service-based component. Research computing will eventually be reassigned to the Department of Biomedical Informatics and it will no longer be considered a part of the Information Services Management Center (UIS). The Department of Biomedical Informatics serves as the focal point for USU's academic computing support, spear-heading such activities as sequence analysis, statistical computing, and the student web page pilot project. It also solves problems associated with the University's widely dispersed informatics initiatives. In the past, attempts to incorporate informatics into USU curricula had been handled by individual departments, leaving the efforts vulnerable to collapse if a key member of the department left or was reassigned. The Department of Biomedical Informatics now serves as a central resource into which all departmental informatics endeavors can be incorporated. Resources for this department will be gradually increased in accordance with the requirements of the SOM and the Military Health System.

Two projects supported by BID, during 2000 and 2001, involved innovative education applications for military health care. A collaboration with the University of California at San Diego (UCSD) brought the National Library of Medicine's Visual Human to the USU campus as part of an application developed at UCSD - *Anatomic VisualizeR*. This 3-D visualization tool for the Visible Human Data Set uses a high end Silicon Graphics workstation for stereoscopic rendering of the data set. This collaboration has developed five lessons specifically for the SOM and the GSN Anatomy Courses. ***In August of 2000, the Dean of the SOM charged the Department of Biomedical Informatics to implement a USU Medical Portable Digital Assistant (PDA) Initiative.*** A working group of students, staff, and faculty devised a staged working plan to deploy the PDA to include: distribution and introduction of the PDA to the SOM students; usage training; communication deployment at USU; communication deployment to the Military Treatment Facilities (MTFs); and, evaluation and refinement of the initiative. The PDA devices were provided to the USU second-year medical students, in December of 2000. Studies have confirmed that physicians and medical students are able to successfully incorporate PDAs into their patient care workflow. With the use of a drug information database, clinicians save time, improve knowledge for themselves and their patients, and possibly decrease preventable adverse drug effects. The goal of the USU Medical PDA Initiative is the integration of this technology into the clinical setting. The objectives of the USU PDA Initiative follow: 1) communication while students are at clinical sites (*HandDBase* and associated databases); 2) clinical encounter log collection (*CWebLog* developed within the USU Departments of Biomedical Informatics and Medicine); 3) clinical reference material access (*qRx(ePocrates*) and 5-Minute Clinical Consult; and, 4) clinical calculator availability (*MedMath*). USU students are responsible for installing five applications and the *CWebLog* channel on their PDAs. During their clerkships, each student is expected to operationally maintain his or her PDA. The PDA serves as a significant option that the USU students have for maintaining a log of their clinical encounters. During 2001, this educational tool was determined to be a complete success and that distribution would be continued in the future. During 2004, the Department continued its support for the PDA Initiative. ***To date, Personal Digital Assistants have been issued to four classes of SOM and Graduate School of Nursing (GSN) students.*** The USU PDA Initiative was highlighted at the Symposium of the American Medical Informatics Association; and, the resulting paper, *The USU Medical PDA Initiative: The PDA as an Educational Tool*, was submitted and published in the Journal of the American Medical Informatics Association, in November of 2002.

As mentioned above, during 2004, BID was responsible for the Clinical *CWebLog* (at <*http://cweblog.usuhs.mil/*>), which is used by USU SOM students to document their experiences, during their clinical rotations; *CWebLog* is currently used by the seven third-year clerkships with access through a web browser and the PDAs issued to the SOM and GSN students. Also, during 2003, the Department established its second course, BID-510, Introduction to the Department, which organizes and teaches *MCB-501, Introduction to Computers for Bioinformatics Computer Skills* (established during 2002, with assistance from faculty and staff in the SOM Department of Preventive Medicine and Biometrics and the Learning

Resource Center). ***The new course was offered during the 2004 Academic Year***. BID also continues to support the implementation of a high performance research network at USU (*Internet2*). Due to an operational connection to *Internet2*, through the National Library of Medicine, BID hosted demonstrations from USU laboratories, during 2004.

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National Capital Area Medical Simulation Center.

The SIMCEN is a world-class, cutting-edge medical education facility, and serves as a template for more than 35 educational institutions currently attempting to employ similar simulation technology into their own medical education programs; the SIMCEN has been featured in a Discovery Channel Series and by major newspapers and professional journals. Today, this facility is unique among the Nation's limited simulation centers because five state-of-the-art teaching components are included under one roof: standardized patients; multi-media, interactive, clinical case presentations on LAN or web-based CD-ROMS; virtual reality software applications; computerized mannequin simulators; and, video-teleconferencing and distance education capabilities... Through over 10,000 encounters, students and residents have gained experience in developing decision-making skills, familiarizing themselves with instruments and equipment and refining techniques and procedures. Recently, the SIMCEN participated in the development of an Anthrax Vaccine Immunization Provider Response Program with the Walter Reed Army Medical Center, Johns Hopkins University, and the Centers for Disease Control.

- **The Honorable Donald H. Rumsfeld, Secretary of Defense,** Narrative Statement and Citation to accompany the Distinguished Civilian Service Award, presented on August 2, 2004.

Background. In response to new technologies and increasing requirements for standardization in clinical assessment skills, coupled with a diminishing in-patient teaching base, United States medical educators have developed a variety of new training and testing tools (trauma and anesthesia simulators, interactive computer-based testing (CBT), distance learning, virtual reality applications, and clinical simulations using *standardized patient* actors (SPs). All of these innovations are being rapidly implemented throughout the United States and are being incorporated as new quality standards for medical education and testing. For example, the National Board of Medical Examiners scheduled the implementation of CBT in the United States Medical Licensing Examination (USMLE) for 1999; and, clinical testing utilizing standardized patients was to be implemented as part of the USMLE Step 2 by 2005. Similar requirements are being discussed by the accrediting entities for advanced practice nurses.

These innovations in medical education conform to the 1995 DoD Medical Readiness Strategic Plan, which states: *The use of modern technological advances such as computer simulations and virtual reality has the potential to provide realistic training in battlefield techniques and procedures, and should be pursued to enhance medical readiness training*. In July of 1995, the Dean of the USU School of Medicine and the Commander of the Walter Reed Army Medical Center (WRAMC) established a committee to plan for a model military medical simulation center for the: 1) development and use of military medicine databases for education and training; 2) simulation, teaching, and measurement of patient interviewing, physical examinations, and diagnostic skills; 3) instruction, assessment, and documentation of readiness skills; and, 4) focused pre-deployment training. The Associate Dean for Clinical Affairs, SOM, was appointed chair of the planning committee and designated to coordinate the project for the University.

Upon the determination of space and personnel requirements by the planning committee, a building on the WRAMC Annex at Forest Glen, Maryland, was identified and approved, by the Commander of WRAMC, as the location for the center. An initial design study, funded jointly by USU and WRAMC, was

completed in September of 1996. In 1997, the concept was briefed to the Assistant Secretary of Defense for Health Affairs and the Surgeons General, during a meeting of the TRICARE Readiness Executive Committee (TREC); the concept was then referred to the Defense Medical Readiness Training and Education Council (DMRTEC). Following a briefing on September 25, 1997, the DMRTEC approved the concept and recommended that USU program for funding. In 1998, the President of USU allocated funds for the renovation of the Forest Glen space and the purchase of equipment. The one hundred percent design was completed on August 12, 1998. Funds for renovation, furniture, and security were obligated on September 30, 1998. Program development and the hiring of staff began late, in Fiscal Year 1998, and continued, throughout Fiscal Years 1999 and 2000. The construction, required for renovation, was completed, during 1999; in October of 1999, the simulation center began training and testing military physicians, nurses, and medical students. On April 21, 2000, the 11,000 square foot National Capital Area Medical Simulation Center (SIMCEN) was officially opened at the Walter Reed Army Medical Center Annex in Forest Glen, Maryland. ***The SIMCEN is the first single location to integrate the use of virtual-reality technology, computer-controlled mannequins, needle insertion simulators, interactive software applications and human simulated patients under one roof to undertake comprehensive medical educational scenarios***.

Educational Activities. During 2004, the SIMCEN was instrumental in introducing medical simulation technology in support of numerous and distinct medical education programs. ***Since October of 1999, the SIMCEN has supported 89 distinct educational activities: 28 - School of Medicine; 14 - Graduate School of Nursing; 21 - Graduate Medical Education; 10 - Operational Medicine; and, 16 - Research Training activities. These educational activities, in turn, supported over 27,000 student encounters with medical simulation.*** It is now estimated that each USU SOM student will utilize the medical simulation center on an average of 26 times, during the four years of medical school education (*this number of encounters could well be* ***the gold standard*** *for student simulation encounters for all United States medical schools*). At present, the SIMCEN expects to support a similar number of programs and student encounters, during 2005.

Since its establishment, the SIMCEN has conducted over 565 tours (60 foreign nations; 125 educational institutions - *many of the Nation's 126 medical schools have already visited the SIMCEN*; and, over 380 visits from military, professional, congressional, and private organizations). ***To date, the SIMCEN is currently serving as a template for more than 45 educational institutions that are attempting to employ similar simulation technology into their own medical education programs***. As an example of the growing reputation of the SIMCEN, on February 21, 2001, the USU SIMCEN was included in the ***Discovery Channel Series***, *The Nature of Things*. The SIMCEN has also been featured in the ***NBC Nightly News*** and ***Fox News***; the segment of the program featuring the SIMCEN was entitled, *Surgeons of the Future*. To date, reports of the SIMCEN's activities and simulation capabilities have led to publications in numerous newspapers and professional journals and in national television programs; selected examples include: *The New York Times*; *GeoWissen*; *U.S. Medicine*; *Institute for Electrical and Electronic Engineers*; *American Forces Information Services*; *Military Medical Technology*; *Sea Power*; *Stripe*; *USU Quarterly*; and, television reports in: *Fox News*: *NBC Nightly News*; *The Discovery Channel*; and, *The Canadian Broadcasting Corporation*.

Multi-Simulation Techniques Under One Roof. While an increasing amount of professional health care training uses simulation techniques, the SIMCEN is unique among the limited simulation centers found at civilian medical schools, in the United States, because five state-of-the-art teaching components are included under one roof: 1) standardized patients (*patient actors*); 2) multi-media, interactive, clinical case presentations on LAN or web-based software applications; 3) virtual reality software applications;

4) medical simulators (computerized mannequin simulators and other medical simulators); and, 5) video-teleconferencing/distance education. It uses technology and actors posing as patients to teach students about situations that they may encounter as practitioners, but might not otherwise experience while training in hospital wards. It also allows for a safe transition between simulations in the classroom and real-life situations in the clinic for learning procedural and surgical skills, and for the interaction with patients in sensitive or difficult situations. ***Another use of the SIMCEN is the instruction of readiness skills and focused pre-deployment training for wartime, peacekeeping, and humanitarian missions***.

The SIMCEN is divided into four functional areas: the Administrative Area; the Clinical Skills Teaching and Assessment Laboratory; the Computer Laboratory; and, the Surgical Simulation Laboratory. Each distinct area can sustain educational activities on its own; and, when necessary, integrate the operations of the entire SIMCEN for a more comprehensive approach. All of the functional areas have been designed to maximize students' access to clinical experience in a state-of-the-art learning environment. The SIMCEN's current research activities include validating the educational efficacy of cutting-edge simulation technology. Some examples of the specialized simulation equipment currently being used include: 1) ***CathSim AccuTouch:*** *Immersion Medical*; 2) ***Vascular Anastomosis Simulator:*** *Boston Dynamics, Inc.*; 3) ***Bronchoscopy Simulator:*** *Immersion Medical*; 4) ***Laparoscopy Simulator:*** *Immersion Medical/ Surgical Science*; 5) ***Ultrasound Simulator:*** *MedSimEagle*; 6) ***Human Patient Simulators:*** *MedSimEagle*; 7) ***SimMan Patient Simulator:*** *Laerdal/Medical Plastics Laboratory*; 8) ***Hand-Immersive Workstation:*** *Cie-Med*; 9) ***Head Mounted Display***; 10) ***People-Shop Software:*** *Boston Dynamics, Inc.*; 11) ***Emergency Care Simulator:*** *Medical Education Technologies, Inc.*; 12) ***Diagnostic Peritoneal Lavage Simulator:*** *Immersion Medical/USU/SIMCEN*; 13) ***Pericardiocentesis Simulator:*** *Immersion Medical/USU/SIMCEN*; and, 14) ***Cricothyroidotomy Simulator:*** *Reach-In, Inc./USU/SIMCEN*. (*The last three simulators were developed by the USU staff at the SIMCEN*.)

The Administrative Area. The Administrative Area serves as the hub for the SIMCEN; the area includes both the administrative offices as well as the Video Teleconference (VTC) Room. In addition to daily operational activities such as personnel, budgeting, and resource allocation, the Administrative Area houses the offices of the SIMCEN Director, the Director of Administration/Computer Laboratory, the Director of the Clinical Teaching and Assessment Laboratory, and the Secretary. The VTC Room is the SIMCEN's audio/video entry and exit point to the outside world. ***Equipped with state-of-the-art video teleconferencing equipment, any of the video signals, throughout the SIMCEN, can be routed through the VTC Room and sent to any connected site in the world.*** This capability allows individuals at remote sites to participate and to review many of the exercises that take place in the SIMCEN. The VTC Room is equipped with a *telecommuting* conference table, which allows up to twelve students, faculty, or visitors to connect their computer laptops to twelve local area network ports for high-speed Internet access. The table is also outfitted with sixteen headphone ports, allowing various audio exercises, which permit instructors and students to simultaneously utilize the same audio files for review and discussion. As a standard conference room, it is also equipped with a slide-to-video converter, document camera, and VCR.

The Clinical Skills Teaching and Assessment Laboratory. The Clinical Skills Teaching and Assessment Laboratory (CSTAL) is designed for teaching and evaluating students in the basic clinical skills of history-taking, physical examination, communication, and interpersonal skills. Here, ***encounters with simulated patients provide an ideal transition from the classroom to real patient contact. The CSTAL also prepares medical students for the United States Medical Licensing Examination (USMLE)***. The area is comprised of four sub-sections: the Orientation Room; the Clinical Examination Room Area; the Monitoring Area; and, the Standardized Patient Lounge. The Orientation Room is used to brief the

students. A ceiling-mounted, drop screen and LCD projector are used to display PowerPoint and/or video presentations for orientation, registration, and briefing students on specific event protocols. The students are registered for clinical events, through a log-in process, which tracks the students, throughout their activities at the SIMCEN.

The Clinical Examination Room Area consists of 12 examination rooms, which serve as the simulated clinical environment for the SIMCEN. There are ten typical (120 square feet) examination rooms and two large (220 square feet) rooms with hospital beds that can be used for inpatient and/or critical care simulation. The large rooms are also suited for trauma simulation and small group teaching events. ***In the Clinical Examination Area, students have the opportunity for encounters with live patients who simulate specific challenges in outpatient, inpatient, or critical care settings.*** Specifically, individuals, referred to as standardized patients, are hired and trained to simulate scripted clinical cases. These clinical cases may be simulated using performance, make-up, real conditions, or a combination of all three. Each Clinical Examination Room is equipped with two video cameras and microphones that permit encounters to be recorded for subsequent analysis and self-evaluation. Each room is equipped with a computer for the patient; a wall-mounted computer is also located outside of each room for students to use for documentation, before and after, the encounter. Typically, clinical examinations are designed following a directive to achieve specific educational goals. The Standardized Patient Trainers and the Medical Director collaborate with faculty members to create projects that meet stated educational goals.

The Monitoring Area is located at the center of the Clinical Examination Area and allows the Standardized Patient Trainer and faculty instructors to monitor the progress of the clinical examinations. A specialized video router controls 24 videotape decks that track the students as they move from room to room. A touch-screen control panel permits cameras to be positioned for optimal imaging. ***Faculty and students are able to view recorded tapes, as if they were in the room, allowing for more detailed observation and more dynamic feedback***. The Monitoring Area is also used for training simulated patients.

The Standardized Patient Lounge is a staging area for simulated and standardized patients to prepare for, and to relax following, activities at the Center. This area is required as the *patient actors* often use theatrical make-up to simulate traumatic injuries or other conditions.

The Computer Laboratory. The Computer Laboratory has two sections: the Computer Laboratory itself and an adjacent Control Room. ***The Computer Laboratory has two primary functions. The first is to identify, develop, and/or use medical education software that contributes towards clinical or medical readiness skills. The second is to provide an environment in which computer-based, interactive clinical examinations can be administered.*** The Computer Laboratory consists of sixteen Internet accessible workstations that can run a variety of medical educational CD- ROMs. Eight overhead cameras and a one-way mirror between the Computer Laboratory and the Computer Control Room ensure that examinations are properly monitored, when the Computer Laboratory is being used for testing. Students use the Computer Laboratory to work with interactive software programs that may be linked to activities occurring in other functional areas of the SIMCEN. ***Additionally, the Computer Laboratory is designed to meet the specifications of the National Board of Medical Examiners (NBME) for a certified United States Medical Licensing Examination (USMLE).*** Although not currently certified, the Computer Laboratory assists students in preparing for the USMLE through the use of test preparatory software packages. Students and faculty can also use the computers to learn and evaluate various clinical and surgical skills (*e.g., communication, history-taking, physical examinations, and cardiac auscultation*) through interactive software applications. Many of the applications are offered using the local area network (LAN). Other applications are web based and accessed via the Internet. The Computer Laboratory also includes a separate

Video Teleconferencing/Advance Distributive Learning (VTC/ACL) capability that serves as the audio/video entry and exit point to the outside world. Video signals from anywhere in the SIMCEN can also be viewed via a fiber optic connection and can be transmitted world-wide via VTC or the Internet.

The Computer Control Room is adjacent to the Computer Laboratory; it is the nerve center for the SIMCEN. All data, voice, and video signals are fed through the Control Room and can be routed to other areas in the SIMCEN, accordingly. The Control Room also houses several departmental servers that handle the current requirements of the Center. During testing, the Control Room operates as a monitoring station for instructors, allowing overall viewing of the Computer Laboratory through a one-way, mirrored window or specific viewing of the individual workstations from the overhead cameras.

The Surgical Simulation Laboratory. The Surgical Simulation Laboratory (SSL) uses virtual reality and a full-scale operating room mock-up to provide highly realistic scenarios for surgical training. This area is the first site approved to investigate teaching the surgical skills practicum for the Advanced Trauma Life Support Course through the use of computer-based simulators and plastic models rather than anesthetized animals or cadavers. ***During the past two years, the SIMCEN has conducted the Nation's first Advanced Trauma Life Support (ATLS) Course using virtual-reality based simulators, computer-controlled mannequins, and medical models instead of animals.*** The Operating Room is furnished to look and feel like a full-scale operating room. In addition to the typical Operating Room equipment, the room holds intravenous catheterization, bronchoscopy, endoscopy, and diagnostic ultrasound simulators designed to provide highly realistic scenarios for trauma, anesthesia, and surgical training. The Operating Room can be configured to match the conditions of a standard Operating Room, an Emergency Room, or an Intensive Care Unit. Here, a single human patient simulator responds to various drugs and interventions. Computer driven, the human patient simulator can be pre-programmed with patient characteristics or variables such as age, anatomy, and physiology factors depending upon the training event. Students are faced with real-life situations as the human simulator breathes out carbon dioxide, and breathes in various gases, depending upon the scripted clinical procedure. Beginning in 2000, when the second mannequin-based simulator was installed at the SIMCEN, through 2004, the three-day introduction to the SOM third-year surgical clerkship has included a day at the Surgical Simulation Laboratory operating room (OR) at the SIMCEN. Disease scenarios include common problems such as pancreatitis, appendicitis, ectopic pregnancy, and gallbladder disease. Students perform comprehensive, focused histories and physicals on two to three *patients* under real-time observation by a faculty-teaching surgeon. The encounter is also taped for interactive student-teacher reviews during small group discussions of techniques and performance. In addition to the patient encounters, separate laboratories are held to teach and perform knot tying, endotracheal intubation and ultrasound fast examination techniques on mannequins. A human patient simulator is used to teach acute trauma care, utilizing various scenarios creating positive and negative outcomes to specific student treatment choices. There is also a virtual reality laboratory for the performance of technical skills including suturing and cricothyroidotomy. Courses taught in the OR include an ***Introduction to Surgery Course*** for third-year SOM students (described above), and an ***Airway Management Workshop*** taught by the GSN Nurse Anesthesia faculty for providers at local Military Treatment Facilities. The OR is featured at the SIMCEN web site: (*http://simcen.usuhs.mil/Surgery/OR/index.html*).

The simulator has five palpable pulse areas and will exhibit the appropriate physiologic reactions in response to various intravenous or inhaled agents. ***Presently, there is a capability for 80 different drugs to be virtually administered by various computer microchips.*** The simulator responds to the type and amount of these drugs according to instructor-determined, pre-programmed patient variables. In the Operating Room Control Room, a two-way headset and a one-way mirror into the Operating Room allow instructors to communicate with the Operating Room Coordinator. From the Control Room, the coordinator can

change patient variables on the computer and even speak into a hidden microphone feed, on the simulated patient, in order to bring more realism to the scene.

The Virtual Reality Room, which is funded, in part, by the Association of Military Surgeons of the United States (AMSUS), develops computer-based surgical simulators and software applications with 3-D, haptic feedback features, designed to meet the educational objectives of USU. ***Two functional directives of the Virtual Reality Room are research that advances simulation procedures and harnessing the capabilities of existing technologies.*** In the Virtual Reality Room, state-of-the-art computer-based equipment enables students to view medical objects in two or three dimensions. *A haptic interface allows the computers to re-create the tactile sense, which permits users to touch, feel, manipulate, create, and alter simulated 3-D anatomic structures, in a virtual environment*. Here students can teach themselves, at their own pace; and, they can feel comfortable about making mistakes, as well as, repeating an exercise. The Virtual Reality Room is equipped with simulators for Vascular Anastomosis, Pericardiocentesis, a Diagnostic Peritoneal Lavage Unit, and a hand-immersive environment for on-going research. ***Both the Pericardiocentesis and Diagnostic Peritoneal Lavage Simulators were developed in the Virtual Reality Room***. These two simulators are the first of their kind; and, they are unique to the SIMCEN. During 2004, the USU SOM Department of Surgery conducted Ultrasound Courses, training over 400 students. Also, during the past year, the entire class of third-year SOM students benefited from the resources of the Surgical Simulation Center. The facility was also used to conduct oral boards for NCC residents, under the direction of **Colonel Mark W. Bowyer, USAF, MC, FACS, Associate Professor, USU SOM Department of Surgery**.

Examples of Recent Achievements. In addition to participating in the numerous educational activities enumerated above and managing the tours and collaboration to assist other medical schools in developing similar simulation capabilities, the faculty and staff at the SIMCEN have undertaken the following endeavors, during 2004.

Funded Projects:

- Contracts with Telemedicine and Advanced Technology Research Center, United States Army Medical Research and Materiel Command to develop:
    - *A Validation Study of the VIRGIL Trauma Mannequin* (the second phase of the project is yet to be funded);
    - *A Virtual Reality Cricothyroidotomy Simulator for Advanced Trauma and Combat Casualty Training*;
    - *A Validation and Verification Study of the Distributed Immersive Virtual Environment for Medical Education* developed by the University of New Mexico and the University of Hawaii;
- A contract with Eastern Virginia Medical College and Old Dominion University to develop a *Validation Study of a Catheter Insertion Project* to be conducted by these institutions in four phases (two phases of this project have yet to be funded); and,

- Participate in a grant awarded to the USU Department of Pediatrics in a project entitled, *Collaborative, Competency-Based Medical Education*, funded by Health Resources Services Administration (HRSA), United States Department of Health and Human Resources (HHS).

Collaboration With:

- The Department of Psychiatry at the Walter Reed Army Medical Center in a Telemedicine and Advanced Technology Research Center, United States Army Medical Research and Material Command funded project, *Comparing Provider Recall, Therapeutic Alliance and Other Interpersonal Factors between Video Teleconferencing and Face-to-Face Clinical Encounters*;

- The Medical and Clinical Psychology Department at the USU SOM in a National Institutes of Health funded project, *USU Center for Health Disparity Research and Education*;

- The Departments of Psychiatry at the Tripler Army Medical Center (TAMC) and USU to conduct *Video Teleconferencing Clinical Encounters between Standardized Patients at USU and Undergraduate Psychiatry Clerics Located at TAMC*, and the TAMC Department of Internal Medicine to demonstrate *The Value of* ***ACCESS GRID INTERNET2*** *Capabilities in Medical Education*;

- The Continuity Clinic of the Family Medicine Department at the Malcolm Grow Medical Center, piloted to use *Unannounced Standardized Patients in a Clinical Setting*;

- The Clerkship Directors at USU and Emory University to sponsor a post-course entitled, *Objective Structured Clinical Examinations and Standardized Patients in Medical Education: Getting Started and Expanding Roles for Physicians*;

- The USU SOM Department of Pediatrics in a Health Research Services Administration (HRSA) funded project to *Enhance Clerkship Education Modalities in Support of Developing High Stakes Clinical Assessment Cases*;

- The Telemedicine and Advanced Technology Research Center, United States Army Medical Research and Materiel Command funded project to *Validate Two Advanced Urethroscopy Simulation Workstations*, developed separately by Immersion Medical and Symbionix;

- The Research Triangle Institute, of North Carolina, in an Office of the Secretary of Defense, Health Affairs, funded project to develop *Virtual Trauma Training Scenarios for Primary Care Physicians and Physician Assistants*;

- The ICM 2, USU SOM Course Director to *Develop an Introduction of Physical Exam Teaching Associates Course Where Standardized Patients Are Trained in Specific Anatomical/Physiological (i.e., abdominal, neurological, musculo-skeletal, etc.) Aspects of the Physician Exam Process*;

- The USU SOM Department of Medicine and the New York Academy of Medicine, Association of American Medical Colleges (LCME) project for *Enhancing Education for the Clinical Transition*; and,

- The USU Graduate School of Nursing and the USU SOM Department of Obstetrics and

Gynecology on a *Genetics Education Counseling Course for Family Nurse Practitioner Trainees with Standardized Patients*.

Institutional Agreements:

- Complete a *Collaborative Research and Development Agreement* (CRADA) with the Research Triangle Institute at North Carolina. A *Non-Disclosure Agreement* is already in place addressing Intellectual Property Protection requirements;

- Complete a *Memorandum of Understanding* with the United States Army Research Development and Engineering (RDE) Command to share source code data on simulation products developed under RDE Command contracts;

- *Memorandum of Understanding* with the University of New Mexico and the University of Hawaii to share information technology data and capabilities developed in the TeleMedicine Outreach Community Health Project. A *Non-Disclosure Agreement* is already in place addressing Intellectual Property Protection requirements; and,

- Complete a *Memorandum of Understanding* with Pennsylvania State University to share information technology data and capabilities in order to develop a unified surgical simulation platform for medical readiness training under contract with the United States Army Telemedicine and Advanced Technology Research Center.

Future Initiatives. Key initiatives planned for 2005 by the SIMCEN, in conjunction with its partners, include:

- *The SIMCEN is currently planning for the development of a Wide-Area Virtual Environment (WAVE) Concept*. The WAVE is ***an immersive, virtual reality environment suitable for providing realistic military medical readiness training via simulations of mass casualty, triage and/or bio-chemical training scenarios***. The WAVE would be designed to simultaneously immerse up to 22 students or medical personnel in immersive virtual reality environments. Students would be exposed to a variety of scenarios, and equally important, participate in a scenario where they can respond as an individual provider or as a member of a medical team. Further, the training scenarios could be linked via *Internet2* to other geographic locations so that other responders could participate in the same training scenario. The WAVE would be established in adjacent space (1,000 square feet) to the SIMCEN; the SIMCEN envisions using the WAVE to generate environmental features such as debris, smoke, buildings, emergency vehicles, and virtual figures to represent off-site participants, while simultaneously employing its cadre of trained *patient-actors* to simulate injured patients. Numerous scenarios could be simulated including explosive, nuclear, chemical, and biological incidents. USU has already obligated funding to plan, design, and renovate the adjacent space; Navy Facilities (NAVFAC) is coordinating with the USU Facilities Division and the SIMCEN to manage these efforts. SIMCEN staff have also collaborated with the University of Michigan and the Army Research Laboratory in Aberdeen, Maryland; as both have on-going CAVE/WAVE projects. The SIMCEN is also collaborating with the University of New Mexico and the University of Hawaii, the RDE Command, and the Research Triangle Institute to acquire existing software developed under government contract that will provide the SIMCEN with 3-D landscape and medical content suitable for use in the WAVE;

- *Expansion of simulation technologies (live standardized patients and mannequins) into graduate medical education residencies and fellowships* to provide initial, refresher, and remediation training to physicians;

- *Comparison of video teleconferencing and live psychiatric patient interviews* to determine whether video teleconferencing, web casting, or Internet-2 patient interviews are as good as live interviews; and,

- *Further demonstration of the practical application of hand-held wireless devices*, such as personal data assistants (PDAs), in a clinical setting.

Summary. The National Capital Area Medical Simulation Center (SIMCEN) is a salient resource for the training of present and future Uniformed Services medical personnel. It provides high-fidelity clinical training in procedures and scenarios at all levels of clinical and military medicine. The SIMCEN also performs important research, aimed at pioneering new capabilities of simulation and/or validating existing technologies, to ensure they can be safely substituted for live patient experiences.

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Research Administration.

RESEARCH: To be a leader in basic, clinical, and health services research to improve health care, to protect, sustain and enhance the fighting force and secure public health.

- Goal 3, RESEARCH, USU Strategic Plan.

Background. The Office of the Vice President for Research was established, in 1995, to facilitate, promote, and oversee the research activities at USU. The position of the Vice President for Research evolved through recommendations from the USU faculty. Following an extensive search, **Ruth Ellen Bulger, Ph.D., was selected as the first Vice President for Research and was appointed in March of 1996**; she served in that position until March of 2000, when she resigned as Vice President to focus on teaching and her many other professional commitments. *Michael N. Sheridan, Ph.D., Professor of Anatomy and Associate Dean for Graduate Education, subsequently served as the Acting Vice President for Research, while a national search was conducted*. **Steven Kaminsky, Ph.D., was selected as the second Vice President for Research and assumed the position in March of 2001.**

The Office of Research currently consists of eighteen full-time staff (seventeen civilians and one Army officer) who serve under the Vice President for Research. The Office of Research reviews, monitors, and coordinates approvals for all matters dealing with research at the University, to include the following: identification of potential funding sources; pre-award review and administration; grant awards and receipts; post-award administration; administration of the Human Research Protections Program, to include administrative support of the University's Institutional Review Board (IRB); and, monitoring of all regulatory compliance requirements. The Office of Research (REA) provides service to three communities: the University as an institution; USU faculty and student investigators; and, the more than 100 funding entities that support research at the University.

The Office of Research manages the Intramural Grant Program and provides administrative support for the SOM Research Merit Review Committee, which conducts peer review of all faculty applications for intramural funding. ***During 2004, the USU Intramural Program was funded at $2.4 million*** for USU student and faculty researchers. ***The intramural portfolio consisted of 66 protocols with special military interest, 38 awards for clinical research, and two projects in areas of educational research***. Standard USU awards for both military-relevant and clinical research were supported at a minimum of 90 percent of the budget requested. In addition, nine new faculty members were awarded special funding. The 2004 USU Student Research Programs supported the work of 2 medical students, 10 students in the Graduate School of Nursing, 42 candidates in the Master of Public Health Program, and 20 candidates in the Ph.D., MSPH, MPH, or Dr.PH Graduate Education Programs. Student applications are reviewed by a faculty committee in each student's area of study and by the appropriate Dean.

The Office of Research similarly oversees ***thirteen multi-site, Congressionally-funded research programs, with FY2004 funding totaling $65,000,000***: 1) the TriService Nursing Research Program; 2) the Center for Prostate Disease Research; 3) the Defense Brain and Spinal Cord Injury Program; 4) the Coronary Artery & Prostate Disease Reversal Program; 5) the Clinical Breast Care Program; 6) the Post-Polio Research Program; 7) Comprehensive Neuroscience; 8) the United States Military Cancer Institute; 9) Congressionally-Directed Humanitarian Assistance Medicine; 10) Military Complementary & Alternative

Medicine; 11) the Anti-Radiation Drug Development Center; 12) Integrative Healing Practices for Veterans (VetHeal); and, 13) the Gynecological Cancer Center. ***Together, these programs support more than 180 individual research projects conducted at USU and elsewhere.***

During 2004, extramural funding for research at USU totaled $58,393,192, and included 136 projects supported by Federal organizations such as: the National Institutes of Health (NIH); the National Science Foundation (NSF); the Department of Energy (DOE); the United States Army Medical Research and Materiel Command (MRMC); the Office of Naval Research (ONR); and a wide array of private and international foundations. These investigations explored a variety of scientific areas, including basic biomedical questions central to the mission of the Military Health System: the mechanisms, transmission, and control of a wide range of infectious diseases; a variety of crucial topics in combat casualty care, operational medicine, and health education and promotion; Defense women's health issues; and, the development of new methods for the diagnosis and treatment of medical problems faced by the United States military and their dependents. ***Thus, 2004 funding for the USU Intramural, Extramural, and Congressional Research Programs totaled approximately $126 million, with over 400 active projects and hundreds of resulting publications***. (*See Appendix C for examples of the achievements and recognition awarded to individual USU researchers.*)

USU Researchers Investigate Diseases of Special Interest to the Military. A wide array of research protocols at USU investigate specific disease threats faced by the Military Health System in its efforts for the sustainment of the Armed Forces, during peacetime and deployment under combat conditions. These projects all supported the essential military mission by advancing the understanding of both the transmission and the internal mechanisms of a spectrum of pernicious and/or common diseases that may be faced by warfighters. These research projects are expected to provide equally important applications in the growing effort devoted to homeland defense; the understanding gleaned by USU researchers will open avenues to better control, diagnosis, and treat natural and man-made biological threats, both at home and abroad. For example, malaria is endemic in many areas where the military deploys its fighting forces; technological advances conducted by USU researchers have made it possible to predict mosquito population levels and transmission risk for a range of mosquito-borne diseases such as malaria, even within precise areas and timeframes. By using satellite imaging and remote sensing devices, researchers assist in predicting high-risk locations for the occurrence of malaria and similar diseases. These predictions focus disease control operations and conserve scarce resources as well as human capital. Infectious diseases studied at USU have included, or continue to include, the following: malaria; Venezuela equine encephalitis (VEE); leishmaniasis; E. coli, H. pylori; and, bartonellosis. Examples of additional disease-related research have included: identification of previously unknown bacterial virulence genes; and, analysis of the genesis and pathology of various types of virus.

USU Research and Combat Casualty Care. Research conducted by USU faculty in the area of combat casualty care has enhanced the provision of rapid diagnostic methods and treatments that ensure military readiness, excellent care for deployed forces, and the rapid return of the injured and sick to active duty. Protocols, dealing with combat casualty care, have focused on the following areas/examples: the exploration of the pain-control mechanisms that underlie established treatments, such as morphine; the provision of groundwork for effective strategies to limit nerve damage and to encourage nerve regeneration; and, the identification of possible causes of life-threatening complications resulting from the combination of exertion and injury that are common under heavy battle conditions.

USU Research Strengthens Military Operational Medicine. USU researchers, in the area of operational medicine, advanced the understanding of, and the ability to manipulate, the physiological mechanisms of stress and immunity; human sleep and seasonal cycles; and, the neurological changes underlying short- and long-term memory. These discoveries should: enable warfighters to stay awake longer with fewer detriments to performance (*this USU research was recognized by Science as one of the top ten scientific breakthroughs of 2002*); lead to better strategies for enhancing and preserving memory and reasoning capabilities under battlefield conditions; help the Uniformed Services and Veterans Affairs to understand, and ultimately prevent and treat, neuropsychiatric illnesses such as depression and post-traumatic stress disorder; and, assist deployed troops and their families to better prepare for, and contend with, the significant, common stressors of military operations.

Support for the 11th Faculty Senate Research Day, School of Medicine Graduate Student Colloquium, and the Graduate School of Nursing Research Colloquium. For the first time, the annual Faculty Senate Research Day and the School of Medicine Graduate Student Colloquium were formally joined with the Graduate School of Nursing Research Colloquium. Activities for all three events, held on the USU campus on May 12-13, 2004, centered on the theme, ***Operational Readiness:*** *Research for Best Practices*. The two-day meeting brought nearly 300 individuals to the USU campus, including researchers from area affiliates such as the National Naval Medical Center, the Walter Reed Army Medical Center, the Armed Forces Institute of Pathology, the National Institutes of Health, American University, Georgetown University, George Washington University, the Howard Hughes Medical Institute, the Washington Hospital Center, and the Centers for Disease Control and Prevention, as well as other prominent government agencies, universities and hospitals.

Enhancement of Administrative Services. During 2004, the Office of Research Administration (REA) expanded its regular meetings with the Research Administrators from all of the USU departments, to address specific topics of interest to researchers and their support staff. The REA staff and departmental Research Administrators continue to meet regularly to: identify and resolve problems; examine the processes for the submission, review, and administration of grant applications; and, strengthen their working relationships. ***REA staff also meets at least monthly with the Sponsored Project Office of the Henry M. Jackson Foundation for the Advancement of Military Medicine, which provides administrative services for more than 80 percent of USU's extramurally-funded projects***. In addition, REA and the Vice-President for Resource Management conducted a two-day workshop on University acquisition procedures using grant funds, to include reviews of approval chains, ordering processes, and using the University's financial tracking system to monitor individual orders.

Since 2001, ***the Vice President for Research has conducted a series of weekly workshops that provide sustained, focused instruction and peer critiques for junior and mid-career faculty engaged in writing applications for extramural funding***. Workshop sessions address the specific skills and expertise required to complete each section of the typical grant application, to include: writing the abstract for the grant proposal; summarizing the scientific background for the area of interest and proposed approach; developing the hypotheses and specific aims; presenting preliminary results; outlining experimental design and methodology; and, planing an appropriate statistical analysis. ***Five such workshops were conducted in 2004***, with a special series for post-doctoral fellows.

The REA Home Page. The REA home page, <*www.usuhs.mil/research*>, supplies pertinent, up-to-date, user-friendly information on both intramural and extramural grant opportunities, as well as, the

capability to download a wide range of application and insurance forms. The Research Development Program now provides access to *ResearchResearch*, a database listing hundreds of funding opportunities available worldwide to faculty, post-doctoral fellows, clinical fellows, and students. In addition, *ResearchResearch* includes tips on grantsmanship, from matching research interests with a wide range of appropriate funding sources, to writing more successful applications.

Institutional Review Board. The Program for the Protection of Human Participants in Research and the USU Institutional Review Board (IRB) jointly ensure the protection of human volunteers, who participate in research projects at USU and its affiliates, from research risks. The Program's administrative staff, which functions as a part of the Office of Research, reviews each protocol with human subjects that is conducted at the University or by a member of the USU faculty or student body to ensure that:

- The research complies with the DoD and other Federal regulations standards of DoD;

- Potential risks to the subjects are minimized by the research design and do not outweigh the actual benefits of participation;

- Appropriate processes for obtaining informed consent from potential subjects are in place, adequate to the backgrounds of the volunteer population as well as the research design, not coercive, and respectful of the needs of the individual volunteers; and,

- The documents produced during the consent process and the conduct of the research protocol are maintained in accordance with standard scientific practice and Federal regulations.

Each research project, following staff review and recommendations, is presented to the full IRB at its monthly meeting. In 2004, the IRB reviewed and approved the following: 171 initial proposals for human subject research; 169 amendments to protocols already underway; and, 230 annual or semi-annual reviews of continuing projects. A second IRB coordinator was added to assist with the growing number of reviews and approvals. The IRB meets at least once a month, with additional, *ad-hoc* meetings, as required, over the course of each year. It is composed of 19 voting members, including eight physicians, one basic scientist, three social/behavioral scientists, one nurse scientist, one medical ethicist, the USU Chaplain, the SOM Commandant, an enlisted soldier, and two other representatives from the non-scientific USU community. Two of the physicians have a law degree and basic science doctoral degree. Fifteen are drawn from the USU faculty and staff; one is from AFRRI; two are employed by NIH; and, one is assigned at WRAMC. Two *ex officio*, non-voting members provide coordination and staffing and attend each meeting: the Assistant Vice President for Research; and, a member of the USU Office of the General Counsel.

A separate Institutional Review Board for the United States Military Cancer Institute (USMCI), formally approved on January 14, 2002, continues to develop as the Institute's protocols acquire scientific approval at the member institutions. The USMCI IRB draws its members from the University and its affiliated medical centers: the National Naval Medical Center; the Walter Reed Army Medical Center; the Armed Forces Radiobiology Research Institute; and, the Malcolm Grow Medical Center. The USMCI IRB ensures that its member institutions and their physicians, dentists, nurses, and other health care providers pursue oncology research in compliance with Federal regulations and accepted ethical standards of scientific conduct. Protocols conducted under the auspices of the USMCI are designed not only to improve the quality of patient care, but also to contribute to better staff education and training.

Independent Reviews Validate the Outstanding Support Provided by the USU Human Research Protections Program and the USU IRB. ***A review of the USU IRB Program was conducted, during June of 2004, by the Office of the Deputy Assistant Secretary of Defense for Health Affairs (Force Health Protection and Readiness) and by the Director, Defense Research and Engineering, Assistant Secretary of Defense for Acquisition, Logistics and Technology***. ***These reviews found no significant deficiencies***, and the REA staff has since been expanded to accommodate the growing number of protocols requiring IRB review. In addition, the Food and Drug Administration (FDA) has cognizance over Federal IRB Programs where research is conducted with investigational new drugs and devices. Because some USU research falls into this category, the FDA has the authority to audit the entire USU program. ***Between February 3 and 6, 2004, an FDA inspector conducted an audit of the USU Human Use Program and the USU IRB***. The audit included a review of IRB minutes from 2003 and 2004, plus a random sampling of the IRB files on FDA-regulated protocols with a greater than minimal risk to human subjects. ***The USU IRB Program was found to be in full compliance with the governing regulations (Title 21, Code of Federal Regulations, Parts 50 and 56) with no need of corrective action by the Division of Scientific Investigations, Office of Medical Policy, Center for Drug Evaluation and Research of the FDA***. During 2001, *USU also obtained a Federal-Wide Assurance from the Department of Health and Human Services (HHS); in 2004, USU began the process of updating its DoD Assurance and Compliance*. Each assurance sets out USU's institutional responsibilities in the protection of human subjects to include: 1) standards for the initial and continuing review of research protocols; 2) requirements for the prompt reporting of information required by each Federal agency, to include the suspension or termination of any study due to non-compliance with regulations or unexpected, serious harm to a research volunteer; and, 3) guidelines for the appropriate training and educational requirements for IRB members, USU investigators, and administrative staff. *The audits conducted by the Offices of the Deputy Assistant Secretary for Health Affairs and the Director, Defense Research and Engineering, in June of 2004, and the FDA in February of 2004, combined with the Federal-Wide Assurance from HHS, during 2001, and the current DoD Assurance of Compliance, have validated the outstanding support rendered by the USU Human Research Protections Program and the USU IRB*.

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The 11th Faculty Senate Research Day, School of Medicine Graduate Student Colloquium, and the Graduate School of Nursing Research Colloquium. For the first time, the annual Faculty Senate Research Day and the School of Medicine Graduate Student Colloquium were formally joined with the Graduate School of Nursing Research Colloquium. Activities for all three events, held on the USU campus on May 12-13, 2004, centered on the theme, ***Operational Readiness:*** *Research for Best Practices*. The two-day meeting brought nearly 300 individuals to the USU campus, including researchers from area affiliates such as the National Naval Medical Center, the Walter Reed Army Medical Center, the Armed Forces Institute of Pathology, the National Institutes of Health, American University, Georgetown University, George Washington University, the Howard Hughes Medical Institute, the Washington Hospital Center, and the Centers for Disease Control and Prevention, as well as other prominent government agencies, universities and hospitals.

Both the School of Medicine Graduate Student Colloquium and the Graduate School of Nursing Research Colloquium were held on the USU campus on Wednesday, May 12th. As the culminating event that day, the USU President hosted a University-wide President's Poster Session and Reception, featuring ten posters selected for the quality of the research, clinical and/or operational significance, and presentation. The 2004 Graduate Student Colloquium featured a career development workshop on job opportunities for graduate students; student poster and platform presentations; and, the ***2004 John W. Bullard Lecture***.

The 2004 Bullard Lecture, ***Transcription Factors and Cancer***, was presented by **James E. Darnell, Jr., M.D., Vincent Astor Professor at The Rockefeller University**. The SOM Graduate Student Colloquium, established in 1980, promotes scholarly interchange between SOM graduate students and the academic community at USU, as well as, recognizing the research achievements of current SOM graduate students. The Graduate School of Nursing Research Colloquium, now in its fifth year, consists of platform and poster presentations by students in the Graduate School of Nursing. In 2004, GSN presentations were divided into three sessions: Operational Readiness; Clinical Decision-Making in the Federal Health Care System; and, Population Health & Outcomes. The all-day session culminated in an awards ceremony for the school, including research and teaching awards for both faculty and students.

The 11th Faculty Senate Research Day was held on Thursday, May 13, 2004. **Eric B. Schoomaker, M.D., Ph.D., BG, MC, USA, Commanding General for the Southwest Regional Medical Command and Eisenhower Army Medical Center, as well as Lead Agent for TRICARE Regions 3 and 15,** delivered the plenary lecture. Doctor Schoomaker's long association with the University includes an assignment as a USU faculty member, in the Department of Medicine, during the 1990s. His talk entitled, ***Operational Readiness and USUHS:*** *From Basic & Behavioral Science to Emerging Best Practices*, focused on the role that USU is particularly suited to play in conducting research that draws on a wide range of scientific results and has relevance for present needs across the Services. The Research Day Program also included both poster sessions on the full range of clinical, basic science, behavioral, and public health research at the University and panel discussions on topics such as ***Rehabilitation, Restoration of Function, and Return to Duty***, ***All You Need to Know About Specimen Storage, Databases, & Future Use***, ***Cancers in the Military Population***, ***Deployment Experiences:*** *Lessons Learned*, ***Emerging and Re-Emerging Infectious Diseases***, and ***Mission-Based Proteomics***.

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USU Center for Laboratory Animal Medicine. The Center for Laboratory Animal Medicine (LAM) is responsible for the humane care, use, and welfare of research animals, in accordance with all Federal and Department of Defense (DoD) regulations and guidelines, the *Guide for the Care and Use of Laboratory Animals*, as well as, USU Instruction 3204, *The Use of Animals in the USUHS*. Oversight of the Animal Care and Use Program (ACUP) is provided by the Institutional Animal Care and Use Committee (IACUC). There were 260 active research protocols supported, in 2004.

On November 5, 2002, the USU Center for Laboratory Animal Medicine received confirmation of continued accreditation from the Council on Accreditation of the Association for the Assessment and Accreditation of Laboratory Animal Care, International (AAALAC). AAALAC is a private, non-profit organization that promotes the humane treatment of animals in science through a voluntary accreditation program. AAALAC's voluntary accreditation process is a way in which animal research programs demonstrate that, they not only meet the minimum standards required by law, but are exceeding those standards to achieve excellence in animal care and use.

> **The Council on Accreditation of the AAALAC has reviewed the report of the recent site visit to USUHS... The Council commends you and your staff for providing and maintaining a high quality program of laboratory animal care and use. Especially noteworthy were the commitment and dedication of personnel at all levels, the Institutional Animal Care and Use Committee's program oversight and monitoring, the outstanding husbandry practices, and the well maintained facilities. In addition, development of the rodent breeding database and**

efforts focused on environmental enrichment were commendable. The Council is pleased to inform you that the program conforms with AAALAC International standards as set forth by the Guide for the Care and Use of Laboratory Animals, NRC, 1996. Therefore, FULL ACCREDITATION shall continue.

AAALAC will conduct the next accreditation inspection of the USU Animal Care and Use Program, in the Spring of 2005.

Background. The Center for LAM is divided into four Divisions: the Animal Husbandry Division (AHD); the Veterinary Medicine Division (VMD); the Veterinary Surgery Division (VSD); and, the Veterinary Pathology Division (VPD). The LAM staff includes three military veterinarians, nine United States Army Animal Care Technicians (91Ts), five United States Navy Surgical Technologists, three United States Navy Medical Laboratory Technicians, and a civilian professional and technical staff of twenty-four individuals. ***During 2004, a total of four personnel from the VMD and one employee from AHD achieved advanced certifications and, in one case, a Masters Degree***.

Heating, Ventilation and Air Conditioning (HVAC) renovations began, in July of 2003, in the main side of the Central Animal Facility (CAF). For the remainder of the renovation, laboratory animals were housed on the G-200 side of the CAF. During this period, animal census was down by approximately 20 percent; the cagewash was down and cages were washed by hand (*approximately 500 cages per week*); a refrigerated truck was rented for the disposal of animal carcasses; and, all animal surgeries were conducted in the Center for Multidisciplinary Services (MDL) and in the Department of Surgery's surgical suite.

Even with the on-going HVAC renovations, during 2003, and the first quarter of 2004, the USU Veterinary Surgery Division (VSD) of the Center for Laboratory Animal Medicine provided surgical training support to qualified USU faculty, supporting both the teaching mission and research protocols. In 2004, a variety of significant teaching laboratories were conducted. There were a total of twenty-four laboratories attended by 662 personnel, using 334 animals. Additionally, 103 procedures, using 91 animals, supported five research protocols. These laboratories provided students with invaluable experience working with biological tissue; and, ***the laboratories were frequently reported by the medical students to be one of their most valuable learning experiences***. The teaching laboratories provide the students with the opportunity to gain experience in basic surgical skills and the proper handling of tissue, among other critical techniques. These skills help the students to more effectively function during their future residencies and in the practice of medicine. Also, in the event that as military physicians they will be deployed under battlefield conditions, the familiarity and heightened skill level afforded by the teaching laboratories can prove to be of significant value. Students are exposed to a combination of training techniques prior to specific training on the use of animals. The use of computer simulation and mechanical surgical simulation devices complements the students' surgical training experiences and also reduces the number of animals required to provide the necessary training. Navy corpsmen staff the VSD. Personnel trained or supported by VSD include surgeons, as well as students. The corpsmen also contribute significant preoperative and monitoring skills to all of the teaching laboratories of the Center for Multidisciplinary Services (MDL). ***An assignment to USU has been found to tremendously broaden the experience of the corpsmen and to afford a unique training opportunity through the combination of human surgical skills with current veterinary technology***.

In 2004, the Veterinary Medicine Division (VMD) was responsible for the following: veterinary medical diagnosis; the treatment and care of all USU animals; initiating and accomplishing programs for

monitoring animal health status and programs for animal quarantine; and, providing animal handling and care assistance to the investigators. VMD monitors on-going projects for compliance with USU guidelines, participates in pre- and post-surgical preparation and care of laboratory animals, and provides a training program for its personnel. ***VMD also prepares and presents training courses in: laboratory animal research techniques; animal care comparative medicine; zoonotic diseases; and, the inventory and procurement of veterinary equipment***. VMD personnel initiate and/or participate in research projects that have been approved following established academic guidelines.

The Veterinary Pathology Division (VPD) was responsible for: operating the University's centralized diagnostic laboratories; providing gross anatomic, histopathologic, and clinical pathologic laboratory support for LAM and USU investigators from both the basic and clinical science departments; consultation services for research personnel in reference to the diagnosis of infectious and/or zoonotic disease; support for AFRRI, as appropriate; and, the selection of outside laboratories required for specialized tests. VPD also interprets laboratory results and makes recommendations for further testing, if indicated, and informs researchers of abnormal results that may affect the outcome of their research. ***VPD participates in, and supports, the University's teaching programs for medical students, graduate students, research technicians, and animal care technicians***. To more effectively accomplish its mission, VPD is subdivided into a Histopathology Section and a Clinical Pathology Section. ***The VPD laboratory is certified by the College of American Pathologists (CAP)***.

The Animal Husbandry Division (AHD) was responsible for providing animal caretaking services. AHD performs daily feeding, watering, and cage changing, to include animal care on weekends and holidays. AHD personnel submit and follow up on facility and equipment work orders; and, they are responsible for daily monitoring of the sterilization, sanitization, refrigeration, HVAC, and cleaning equipment systems. Additional equipment operated and maintained by the AHD include microisolator caging systems, laminar flow racks, Thoren units, and Horsfal isolation units. ***AHD is responsible for animal ordering, tracking, and housing upon animal receipt***. AHD is also responsible for ordering the feed, bedding, personal protective equipment, chemicals, caging and caging accessories as necessary to perform the animal care mission. AHD personnel also perform the animal census or inventory.

The animal caretakers observe animals and facilities during their animal husbandry procedures; ***veterinary technicians perform rounds on all rodent rooms once daily, and all large animal rooms twice daily, to include weekends and holidays***. All incidents of animal sickness or poor health are reviewed by a veterinarian. Generally, the veterinary technicians perform most medical treatments under the direction of a veterinarian. ***LAM veterinarians are always present and may directly participate, when medical treatments/procedures involve extensive animal care or if anesthesia is required***.

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USU Barrier Facility. A rodent barrier facility occupying approximately 2,558 square feet within the USU Central Animal Facility is capable of housing 6,000 mice. This resource was conceived and developed by the Vice President for Teaching and Research Support and veterinarians from the Center for Laboratory Animal Medicine, along with input from the USU Institutional Animal Care and Use Committee, and interested USU investigators. The facility, opened during 1999, is equipped to accommodate the needs of USU investigators whose protocols require that research animals (rodents) be kept under ultra clean conditions. Ultra clean conditions are necessary to reduce the chance of pathogen exposure, which could have devastating effects on research goals and potentially result in the waste of animal lives, investigators' time, and related resources. The facility is also intended for the housing of transgenic mice (mice that have

been altered genetically to simulate disease states or modified biochemical conditions).

The Barrier Facility includes one full-time technician who is specifically trained in transgenic techniques and is capable of producing transgenic animals; the technician monitors animals housed within the barrier and is responsible for: 1) written entry procedures (which include the use of personal protective equipment) and the restriction of non-essential personnel; and, 2) the conduct of training on barrier-housed animal handling procedures. Equipment acquisitions in support of the barrier include ten ventilated cage racks and a controlled-rate freezer for the cryopreservation of crucial reproductive elements (mouse embryos, eggs, and sperm). The controlled-rate freezer is state-of-the-art, permitting the long-term storage of frozen mouse embryos. ***Once a transgenic or other valuable mouse line is developed, the cryopreservation technique keeps that line viable without having to house large numbers of breeding animals to maintain the line***. When a particular mouse line is required, the embryos are thawed, implanted, and normal breeding of the line continues. ***This saves a tremendous amount of space and resources that would normally be required for maintaining a breeding colony***.

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Center for Environmental Health and Occupational Safety. The mission of the USU Center for Environmental Health and Occupational Safety (EHS) is to provide a safe and healthful environment for all students, faculty, staff, and visitors. Medical education and research involve the purposeful and safe use of hazardous materials, including chemical, biological, and radiological agents. The Center is composed of three divisions: the Occupational Medicine Division; the Radiation Safety Division; and, the Industrial Hygiene and Environment Division.

In 2004, initiatives were taken to further improve the functionality of the Center. The University Safety Officer was realigned directly under the Director of EHS, where he coordinates all EHS provided safety training from one office. The EHS environmental software suite was upgraded to an SQL platform, greatly enhancing the functionality and increasing the speed of the EHS information system. An information system technician monitors and maintains the system and interfaces with researchers, thereby better serving the University requirements for inventory control, training, and medical surveillance. Several staff members participated in continuing training in biological safety, mishap and accident investigations, regulatory compliance, and in the handling and transportation of radioactive materials.

Radiation Safety Division. In July of 2004, **Major Dan Hamilton, USA, Medical Service Corps,** reported to USU as the Radiation Safety Officer and Deputy Director of EHS. Major Hamilton was also assigned as the Center for Disease Control (CDC) and Prevention Select Agent Responsible Official for the University. Under his leadership, the Radiation Safety Division continues to provide the highest quality of radiation protection support to USU and all researchers working with radioactive materials. ***In November, the Nuclear Regulatory Commission (NRC) conducted an unannounced inspection of all USU NRC licenses. To the credit of the Radiation Safety Staff, there were no violations noted in any USU NRC licensed activities***. The inspectors voiced accolades concerning the excellent management and operation of the Radiation Safety Division. ***Additionally, an audit of the CDC Select Agent Program was also conducted with no adverse findings***.

Occupational Medicine Division. This Division conducts Medical Surveillance and other Occupational Health Programs in a variety of occupational areas including animal care, pregnancy, hearing conservation, laser eye safety, immunizations for laboratory and health care workers, treating and tracking occupational injuries, ergonomics, blood borne pathogens, wellness programs, and biological safety. The Division is also instrumental in providing training in the above mentioned areas and has made significant improvements in training materials; other organizations have asked to use the training materials prepared by the USU Occupational Medicine Division. The Division also provides excellent management of the University Pharmacy Program and the Drug Enforcement Agency regulated Controlled Substance Programs. The Occupational Medicine Division issues pharmaceuticals and controlled substances to authorized USU researchers for use in research protocols. The Division maintains outstanding oversight over these essential programs and, in 2004, completely revised all relevant instructions, which provides increased clarity and improved program audit procedures.

Industrial Hygiene and Environment Division. This Division provides essential industrial hygiene and environmental support to approximately 1,700 USU faculty and staff and approximately 300 laboratories. Programs include: Workplace Surveillance; Chemical and Regulated Medical Waste Management; Hazardous Communication and Laboratory Chemical Hygiene Training; and, Regulatory Compliance Assistance. Improvements in monitoring equipment and scheduling were accomplished and an increased number of workplace surveillances were performed to detect potential exposures to various chemicals, dust, and gases and to ensure personnel safety. The Division ensured that the University complied with all environmental laws by successfully managing the disposal of an increase in the amount of hazardous waste from the previous year. The State of Maryland's Biannual Hazardous Waste Management Report was accurately completed and submitted prior to the reporting date. The Division also worked diligently to ensure that the University complied with the State of Maryland's Waste Water Permit requirements; an on-site State inspection was successfully passed. The area of information management was improved by adding a staff member to manage a key data base program, as well as the EHS Center's Web Site. In 2004, two members of the staff were recognized for their professionalism and dedication by their selection as Service Members of the Quarter.

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SOM Department of Psychiatry Sponsors a Collaborative Relationship with the Stanley Laboratory of Brain Research.

> **The Stanley Brain Bank, part of the Stanley Medical Research Institute, is made possible through the generous funding of the Theodore and Vada Stanley Foundation. The Brain Bank is part of the School of Medicine Department of Psychiatry of the Uniformed Services University of the Health Sciences and is located on the grounds of the National Naval Medical Center in Bethesda, Maryland. The Stanley Brain Bank has 500 specimens; in addition to using the tissue for its own research, the Stanley Brain Bank has sent over 100,000 sections and blocks to 120 research groups around the world. At most national and international research meetings on schizophrenia and bipolar disorder, at least half of the presentations and posters on neuropathology reflect work utilizing tissue from the Stanley Brain Bank.**
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> - **E. Fuller Torrey, M.D., Associate Director for Laboratory Research, the Stanley Medical Research Institute,** *Stanley Brain Bank Newsletter*, No. 10: Spring 2002.

Background. In February of 1999, during a ribbon-cutting ceremony, the University President welcomed the Stanley Laboratory of Brain Research to the SOM Department of Psychiatry. Through a Memorandum of Agreement with the University, the School of Medicine, and the Stanley Medical Research Institute, the USU community now has access to the Stanley Laboratory's brain specimens from individuals who suffered from diseases such as schizophrenia, bipolar disorder, and severe depression - the largest of such collections in the World. The Stanley Medical Research Institute Brain Bank and Neuropathology Consortium is made possible through funding from the Theodore and Vada Stanley Foundation. Its purpose is to collect postmortem brain tissue and to distribute it, without charge, to research groups working on schizophrenia and bipolar disorder (manic-depressive illness).

Current Activities. **E. Fuller Torrey, M.D.**, and his research group continued to provide outstanding expertise to the University, throughout 2004. The Stanley Foundation postmortem brain collection for research on schizophrenia and bipolar disorder has over 600 specimens; the Stanley Laboratory has distributed more than 160,000 sections and blocks of tissue to 160 research laboratories world-wide that are conducting research on these diseases. Some 55 large freezers contain the collection located at the Brain Research Laboratory. The specimens are approximately evenly divided among individuals who were diagnosed with schizophrenia, bipolar disorder (manic-depressive illness), severe depression, and normal controls. Most of the specimens are provided to researchers doing research on schizophrenia, bipolar disorder or depression. For example, during 2000, the Stanley Foundation donated a normal control specimen to a World Health Organization project dedicated toward the establishment of worldwide standards for brain tissue for comparison with prion-caused diseases such as Creutzfeldt-Jakob Syndrome. On April 9, 2001, The Washington Post featured Doctor Torrey in an article entitled, *Thinking Outside the Box*. The article included the following statement: ***The Stanley Foundation is supporting a quarter of the research on schizophrenia and half of the research on manic-depression in both the United States and Europe***. In 2002, Doctor Torrey received the *William C. Porter Lecture Award* from the Association of Military Surgeons of the United States (AMSUS).

When the Stanley Foundation initially assumed responsibility for the Neuropathology Consortium, it looked forward to the day when it would have hundreds of measurements on the same parts of the brain from many different laboratories. That task is being addressed through the work of **Doctor Michael Knable** who is assessing over 1,000 markers of brain function in the prefrontal cortex, cingulate, hippocampus, and superior temporal area. Many abnormalities from this study have already been published in Brain Research Bulletin (Volume 55, pages 651-659, 2001) and Clinical Neuroscience Research (Volume 2, pages 171-181, 2002); other publications are in progress.

In May of 2001, Morley Safer of *60 Minutes* interviewed Doctor Torrey with a focus on his research on schizophrenia and bipolar disorder. That interview was featured on the April 21, 2002 edition of *60 Minutes*. Doctor Torrey co-authored the book, Surviving Manic Depression: A Manual on Bipolar Disorder for Patients, Families and Providers (published by Basic Books, 2002) and The Invisible Plague: The Rise of Mental Illness from 1750 to the Present (published by Rutgers University Press, 2002). During 2003, he was profiled in the Princetown Alumni Weekly and the Stanford Magazine.

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Information Technology.

Background. During 1994, committees were formed at the University by the School of Medicine and the Faculty Senate to address USU's future use of computers and technology in general. With the rapid development of Information Technology (IT) and Medical Informatics at USU in mind, the University President sent a delegation of seven USU representatives to the American Association of Medical Colleges (AAMC) Information Technology Conference. The conference served to reenforce the University's inclusion of computer-assisted communication and technology within its strategic planning process. With support from the leadership at USU, strategic goals were developed so that Medical Informatics would be utilized to emphasize distance learning, continuing medical education, computer-assisted medical education, access to medical databases, and other medical information systems. The focus of those efforts, in accordance with the University's mission, would be on the unique educational requirements of military and disaster medicine. ***In October of 1997, a number of USU information technology-related committees were combined to form the Automated Information Systems Policy Committee (AISPC). This committee met, as required, to review guidance and objectives, identify resources, develop requirements, and plan information technology policy strategies and training***.

Overview of Activities in 2004. On-going activities and improvements reported, during 2004, include the following: ***Servers:*** Administrators can now schedule unattended back-ups for ten production servers from one central location. ***Network:*** In support of the Bethesda Naval Base, a convergence on the connection to the Internet Cloud was moved from a commercial connection to the DISA connection. ***Enterprise Database:*** The USU Corporate Database has approximately 235 database tables and is populated with more than 950,000 records that can be utilized to analyze and measure organizational performance. ***University Webpage:*** A new USU Web Site Search Engine is available. ***Training:*** The UIS Training Officer updated the *UIS User's* and *Quick Reference Guides* and delivered training developed from those guides. ***Desktop Computers:*** UIS managed a three-year technology refreshment cycle for 1,037 leased desktops within the University. ***Centralized Software and Support:*** UIS managed all of the USU supported software for the central computing facilities and utilized push technology for security and software updates. ***Teleconferencing:*** UIS substantially improved systems for up and down links for USU's

video teleconferencing systems. ***Wireless Network:*** A wireless network was implemented, supporting both research and teaching requirements. ***Information System Security:*** The Information Systems Security Officer (ISSO) played a major role in identifying systems with security deficiencies. ***UIS Professional Training:*** UIS personnel continue to receive certifications and training (e.g., Network, Security, LAN, Wireless, Oracle, Supervisory, etc.) throughout the various UIS Branches.

Customer Support. During 2004, the University Information Services Management Center (UIS) provided continuous service to the University's faculty, students, and staff who work diligently to ensure medical readiness for the Military Health System. ***UIS support included: service for approximately 3,000 information systems users; e-mail access; remote dial-in accounts; Internet Protocol (IP) and IP2 connections, satellite; software applications that support the University's core business processes; 1,500 dial-in-users; 2,236 voice and fax telephone lines; and, 1,400 voicemail systems located on and off campus, at the National Naval Medical Center, other DoD facilities, and some non-DoD facilities***.

Desktop Computers. Following guidance from the Office of the Assistant Secretary of Defense for Health Affairs (ASD/HA), a plan to lease desktop computers by the University was implemented in 1998. The plan calls for all basic office automation and teaching computers to be replaced with leased systems. ***During 2004, the UIS Helpdesk deployed over 50 additional new leased systems; implemented tasks to replace 342 existing systems that will be deployed, in Fiscal Year 2005; and, performed annual inventory for 1,037 systems under the University's desktop computer-leasing program***. UIS reduced the leased computer refreshment cycles from four to three, through consolidation. The leasing program continued to provide standardization, technology refreshment, enhanced budget planning, compatibility, and improved user support.

Internal network servers are now running the Microsoft SUS product, allowing UIS to push software security patches, along with common software updates, from a central location, to the user's desktop. ***UIS continues to manage $677,000 in contracts to support the leased machines and $300,000 to support software licenses for the central computing facilities***.

Helpdesk. A set of desktop tools, also based on ASD/HA guidance and USU requirements, was recommended by the AISPC and approved by the USU President. In addition, the University signed an agreement under a Maryland State Educational Contract (the Maryland Enterprise Educational Consortium (MEEC) with the Microsoft Corporation that provides site licenses at significantly reduced educational rates. This agreement allows the UIS Helpdesk to make the latest Microsoft software available to all faculty, staff, and students. *The selection of a single set of desktop tools has greatly simplified user support and improved the Helpdesk response*. ***During 2004, the Helpdesk processed 7,979 service requests for the Information Resource Management Center (UIS), of which, 3,701 calls were assigned and resolved by the Helpdesk Branch***. The UIS Helpdesk continued to test, deploy, manage, and provide support for Microsoft and other standard desktop products. In efforts to continually provide excellent customer support service, enhance the quality of service, and keep users abreast of IT related topics, the Helpdesk provided: weekly computer tips to users, along with virus alerts, resolutions and protection; responded to more than 340 virus calls; electronically notified USU customers of receipt of service requests for tracking purposes; and, acquired privileges to reset LAN and Root Domain passwords, without delay, thereby reducing turn-around time.

During the latter part of 2004, ***the Helpdesk implemented modules of the existing call tracking system (HEAT) to increase UIS internal communication and ultimately provide a quicker response to the USU users. This tool provided all branches of UIS with a means to: expeditiously flag tickets; and, obtain and report information regarding network, security, virus, and/or software problems that are reported, either internally by staff, or externally by users***. Other call tracking projects included the web-based call tracking tool (*iHeat*), which works in conjunction with the existing client tracking system. This tool allows technicians and managers to access records from any web location versus the desktop client.

Other Helpdesk accomplishments, during 2004, included: IP tracking and maintenance of the database; and, providing application requirements to the Software Development Team, in order to integrate isolated databases into a central location to be shared and associated with other related records. The Helpdesk staff participated in in-house training on standard operating procedures and off-site training to acquire professional certification to better service its customers.

Software Development. During 2004, ***the Information Engineering Branch (IEB) provided continuity in the development of core business applications and populating data in the USU Corporate Database. To date, the Oracle Enterprise Database has approximately 235 database tables and is populated with more than 950,000 records that can be utilized to: assist in the process of quantifying the medical and military professional accomplishments of USU medical school graduates; measure organizational performance; and, analyze data for study purposes***. Many of the Enterprise applications support the USU, the Academic Center for the Military Health System. The Enterprise Database is designed to track people, processes, and property at the University. Benefits include: central data repository; standardization; as well as, information that can be shared by students, faculty, and staff.

In 2004, ***the IEB successfully developed and deployed components of a client/server and web based application for the Center for Laboratory Animal Medicine (LAM). As an integral component of the USU Corporate Database, it is designed to electronically process administrative functions, such as protocol management and Institutional Animal Care and Use Committee (IACUC) tracking***. It also tracks animal protocols, animal orders, deliveries, animal census, supplies, and per diem costs. The LAM system is very complex and is comprised of five modules: Institutional Animal Care and Use Committee (IACUC)/Protocol Management; Animal Husbandry Division (AHD); Veterinary Surgery Division (VSD); Veterinary Medical Division (VMD); and, the Veterinary Pathology Division (VPD). This software application compiles daily charges for journal voucher reporting and interfaces with the CUFS financial System. The new LAM application consolidated and replaced the LAM Legacy System, in addition to, a PC based database. In support of the UIS wireless project that will provide LAM with a dedicated wireless network, the IEB modified the Veterinary Medical Division module of the LAM application to accommodate monthly reporting for vitals, versus weekly reporting. The VMD module will interface with wireless devices (PC Tablets) on LAM's dedicated wireless network.

During 2004, ***IEB conducted analyses and design activities on several applications to be included in the USU Corporate Database. Analysis and design tasks included conducting customer interviews, analyzing current business processes, creating data flow and screen flow diagrams, performing preliminary data analysis, and drafting specific system requirements***. Following the preliminary planning phase of development, the IEB continued software engineering activities with the following departments: Continuing Health Professional Education; the Military Training Network; Civilian Human Resources; Security; Military Personnel; and, the Audio Visual Center. Testing and implementation of these systems will be completed, during 2005.

Software Maintenance. During 2004, ***the IEB responded to 1,318 trouble calls for maintenance, enhancement, and data requests associated with software applications developed, in 2004, and prior years***. The requests included service for the Student Tracking and Registration System (STARS II); Personnel Locator; Mailbox System; the Office of Graduate Education; AMCAS/AWS support (external data feed); Alumni Office application; Pharmacy application; and, the GSN application. IEB continued to staff a stable Development Team comprised of experienced software developers and a database administrator. Staff members hold degrees and Oracle and Microsoft professional certifications.

Web Development. ***Web development projects, during 2004, included the availability of the new USU Web Site Search Engine. This feature provides the capability for USU web site visitors to easily locate information from any of the posted web pages, through the use of key words***. Additionally, the following new web sites were developed: Recruitment and Diversity; Laboratory Animal Medicine; Institutional Animal Care and Use Committee (IACUC); and, the USU Strategic Plan. ***The Web Masters performed improvements to the USU Bulletin Board, which includes new administrative features for deletion, editing of messages, as well as, the ability to add administrative messages***. Other web development projects, during 2004, included an on-line survey for the USU Sports Medicine Group, which involved data collection, via the Internet, placing the data into an electronic format, and subsequently providing the data to the customer, in both converted and raw formats. The Web Masters continue to use a systematic methodology to perform web development activities. ***During 2004, the LAM web based application was integrated into the USU Corporate Database***. In addition, the IEB continued to perform maintenance work on the Graduate Education on-line application. The web development projects were developed using Microsoft ASP, Visual Basic, PERL, and ran on a Microsoft IIS server in a Windows 2000 environment. To ensure data integrity and security from intrusions, all servers are routinely monitored and backed up.

New Technology (Wireless). During 2004, ***UIS purchased equipment to support wireless technology at the University. The goal of the Wireless Project is to enhance teaching and learning with the use of wireless technology for USU students and to provide wireless network access for staff and visitors***. During the latter part of 2004, UIS began testing the wireless environment with much success; wireless access is now available in the Assembly and Student areas, supporting both research and teaching requirements. Benefits include access to e-mail, Internet, and research material. On-going efforts are being made to implement wireless devices in dedicated areas to be utilized with wireless applications.

Training. During 2004, ***the UIS Training Officer provided classroom training for all SOM, GSN, MPH, and Graduate Students, as well as, personnel located at off-campus sites, such as Silver Spring, Maryland; the Walter Reed Army Medical Center; and, the National Naval Medical Center***. The Training Officer also provided training at the USU Faculty and Staff Orientation Sessions, which are held quarterly. At the user's request, the Training Officer performed specialized *hands-on* and *one-on-one* training for users on Microsoft applications, GroupWise E-Mail, the Proper Use of Network and Computer Resources, Network Security, and the newly developed ROOTDOMAIN, as well as, all supported UIS software and special requirements. The Training Officer provided annual and recurring security awareness training required for all faculty, staff, and students. In support of on-going strategic planning efforts, the Training Officer updated and electronically delivered the *UIS Quick Reference Guide* and the *UIS User Guide*, in 2004. And, the UIS Training Officer continued to develop training schedules and new topics for *Hands-On* training. Both *Guides* and the *Hands-On* training were developed in response to the University's strategic planning efforts to improve on- and off-campus communications.

System Operations (Network, Telecommunications, NetWare, and VAX). ***In 2004, UIS System Operations supported 2,000 users in six remote locations. The Operations staff continued to produce significant gains in the stabilization of the network. Emphasis remained on server stability. Again, USU experienced a University WEB exposure of over 99 percent uninterrupted up-time***.

Network. During 2004, ***the Network Branch processed 230 customer requests. Network personnel are responsible for the University's network design, implementation, maintenance, and configuration management. The Network staff continued to manage all local distribution systems with little, or no, down-time***. Project accomplishments, during 2004, included: additional infrastructure added to the commercial network connection; the implementation of a wireless network in designated areas of the University to support both research and teaching requirements; expansion of lab support in the Multiple Disciplinary Labs from 100 to 200 workstations with network capability; the consolidation of old Fiber Services circuits, which moved to fully supported *gigabit* services, at the remote Silver Spring site, in support of the Graduate School of Nursing, the Office of Continuing Health Professional Education, the Military Training Network, and Research Administration.

Telecommunications. During 2004, ***the Telecommunications Branch processed 720 customer requests. The Telecommunications personnel provided support for: 2,236 voice and fax telephone lines; 1,400 voice mailboxes; and, video teleconferencing and satellite technical support for a wide variety of users***. Significant improvements were made in the reliability of communications and video conferencing services. New telephone lines and support equipment were installed in several newly acquired and/or renovated locations. Numerous telephone lines and support equipment had to be replaced, throughout the University, due to on-going renovations. Video Conference technology support was provided to the Departments of Medicine, Preventive Medicine and Biometrics, Medical and Clinical Psychology, and Obstetrics and Gynecology. Satellite programs were also downloaded for the Department of Preventive Medicine and Biometrics and the Armed Forces Radiobiology Research Institute. ***During 2004, the Telecommunications Branch provided emergency telephone, cable, and special circuit support to on- and off-site locations that experienced service interruptions***. Projects, during 2004, included: up-grading the voice mail system with up-to-date software; replacing the FNS circuits with reliable fiber optic connections; relocating equipment for the University Health Center, Preventive Medicine and Biometrics laboratories, and other offices during an on-going renovation project; and, up-grading the voice mail system from 1,200 to 1,400 mailboxes, in conjunction with Verizon Communications and other vendors. Telecommunications personnel continued to receive professional training at local IT training sites.

Netware/GroupWise/Microsoft/Linux. In 2004, ***the LAN Operations Branch processed more than 1,700 customer requests***. The Branch is responsible for: the Novell's File and Print Servers; six GroupWise E-Mail Servers; one in-bound Netware Gateway Sendmail Server; two in-bound and out-bound Linux Sendmail Servers; and, two Microsoft Domain Controllers. ***The Netware Administrators provided maintenance support for the following: back-up of over 600 gigabytes of data; space allocations; on-line support of hardware failures; virus protection, testing and implementing vendor patches and upgrades; LAN account creation and deletion; reliable mail and file storage; and, the maintenance, creation, and attrition of over 2,500 Netware and E-Mail accounts and over 1,000 dial-in accounts***.

During 2004, ***the LAN Operations Branch introduced the latest in back-up and restore procedures, with the installation of the new Netvault System***. The administrators can now schedule unattended back-up for all ten servers from one central location across a separate gigabyte network. Internal network servers

are now running a Microsoft SUS package, allowing UIS to push software security patches and common software updates to the user's desktop from a central location. Other 2004 project accomplishments included: integrating wireless technology into the USU environment; and, implementing a Root Domain Service with more than 50 percent of leased machine participation; the Branch has an expectation of 90 percent participation, in 2005.

Web Support. In 2004, the UIS Operations Division maintained and supported three web servers: Primary; Interim; and, Back-Up. ***The Primary web server hosted over 3,500 pages***; the server runs under Linux. The Linux Administrator upgraded the operating system and created a procedure to watch the web server process for errors. ***The Interim web server supported 85 Page Masters, within the University***; the server runs under Red Hat Linux, with Apache as the web engine. ***The administrator has patched security holes on this server, which has resulted in a 100 percent up-time status***. In 2004, the USU Web Masters of the Information Engineering Branch continued to provide support to the University's Page Masters.

VAX During 2004, ***the VAX Administrator processed more than 78 customer requests. The VAX Administrator is responsible for system maintenance, hardware and software support for the VAX and ALPHA Computer Systems***. Accomplishments, during 2004, include: the removal of old user accounts and data to back-up tapes, which allows for the consolidation of the remaining accounts and data on fewer disks; the continuing update of the system software to prevent system crashes; the further reduction of the overall costs of the hardware and software contracts, through the elimination of unnecessary equipment and software; the continuing defragmentation of the user disks to improve processing times; the moving of the VAX systems (3) behind the firewall to improve security; and, working with Resource Management Information personnel to reduce the number of print-outs, through electronic distribution.

Security. During 2004, ***the Information Systems Security Officer (ISSO), investigated more than 60 security incidents and virus attacks from NavCert, the National Naval Medical Center, the Fleet Information Warfare Center (FIWC), DoD, and the USU Security Office***. In addition to investigating incidents, the ISSO reported subsequent findings to the requesting agency based on appropriate reporting procedures; and, the ISSO developed an internal process to centralize the tracking and reporting of incidents. In addition, the ISSO played a major role in eradicating computer viruses and identifying systems with security deficiencies. Other successful projects that the ISSO participated in, during 2004, included 1) ensuring that security configuration management tasks were performed on all systems, including leased machines, Henry M. Jackson computers, laptops and personal computers; 2) identifying new applications and technologies for virus protection in support of network defense; and, 3) applying HIPPA standards to personal computers for certification. The ISSO provided guidance to students, staff, and faculty on ROOTDOMAIN user accounts and local administrator accounts. And, the ISSO was also instrumental in providing guidance in support of the development and security of the USU EDU Wireless Network. Finally, the ISSO provided guidance to the Automated Information Systems Policy Committee (AISPC) on a wide range of security issues and policies.

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Joint (USU and HJF) Technology Transfer Program.

Background. New Federal statutes, dating from the early 1980's, have encouraged Federal research laboratories and public academic institutions to transfer inventions and other technology to the public sector (industry, state and local governments, and other academic institutions). This *technology transfer* process helps to ensure that the benefits of public investment in research and development are shared with all segments of our society. The new statutes also permit Federal laboratories and public academic institutions to receive royalties and other income associated with technology transfer involving the commercial sector - providing funds for use in further research and for incentives to researchers and other personnel involved in research. Many academic institutions have partnered with supporting foundations to enhance their efforts in technology transfer.

Technology transfer mechanisms include cooperative research and development agreements (CRADAs), material transfer agreements (MTAs), and licensing agreements. Intellectual property rights in inventions are protected through the patenting process. Because of the legal issues associated with technology transfer mechanisms and the patenting process, the USU Office of the General Counsel is directly involved in both the oversight and operation of USU efforts in technology transfer. In 2000, USU and the Henry M. Jackson Foundation for the Advancement of Military Medicine (HJF) established a Joint (USU and HJF) Office of Technology Transfer (JOTT) and a Joint (USU and HJF) Patent and Technology Review Group (JPTRG). Operating jointly has enhanced interrelationships with the HJF-supported USU biomedical research program and facilitated both patent protection and commercialization of USU and HJF-developed technology.

Assisted by technical expertise from the United States Army's Intellectual Property Division (pre-2000) and the JOTT, ***USU has established itself as a leader in biomedical technology transfer and one of the most successful technology transfer income producers among all government agencies***. This success has generated funding support for USU's research and education programs, as well as, significant monetary awards for individual researchers. The USU Technology Transfer Income Oversight Committee provides oversight for the allocation of technology transfer income, to include allocations to a limited number of endowment funds. University initiatives are also advanced through the use of collaborative research and development agreements, invention licenses, collaborations, and partnerships.

Current Activities. A significant indicator of the success of technology transfer, at USU, is the sharing of USU research in a manner that promotes progress in science and improvement in the quality of health care for the Uniformed Services, the Nation, and the world. ***In 2004, the University entered into seven new Cooperative Research and Development Agreements (CRADAs) and 63 new Material Transfer Agreements (MTAs); USU also filed 7 patent applications and 9 provisional patent applications***. In addition, ten patents were issued for USU inventions and two new licenses were executed, for a total of ten active licenses. These licenses generated over $6.7 million in income for allocation to USU research projects, educational programs, and endowments, as well as, for incentives for researchers and their laboratories. Separately, CRADA partners provided $72,000 in support for research. Technology transfer has also played an important, direct role in strengthening USU research overall, with recognized success in Microbiology and Immunology; Pediatrics; and Anatomy, Physiology and Genetics.

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RESOURCE STEWARDSHIP

STEWARDSHIP: We will protect and enhance the human and physical resources of the University, optimize productivity, promote a sense of family and community, while emphasizing flexibility in response to changing world conditions.

- Goal 5, STEWARDSHIP, USU Strategic Plan, 2003.

New Construction on the USU Campus.

Background. Since 1978, there has been no additive construction to support USU activities, despite the growth in the number of degree-granting programs conducted by the University and major increases in the cost-effective oversight responsibilities assigned to USU by the Office of the Assistant Secretary of Defense for Health Affairs (OASD/HA). Some of those expanded responsibilities include: the Graduate School of Nursing (GSN); administration of the TriService Graduate Medical Education (GME) Programs for the National Capital Consortium; mandated professional Continuing Health Education (CHE); the USU/ DoD Center for Education and Research in Patient Safety; the USU SOM Departments of Medical and Clinical Psychology and Family Medicine's Center for Health Disparities Research and Education; and, essential credentialing programs for the MHS. In addition, *the accrediting entities for the University have continuously recommended that USU address the expanded academic program requirements for small classrooms; and, they have expressed serious concerns over the separation of the GSN faculty and students between two locations, which adversely impacts student instruction, mentorship, and counseling*. Between September 1993 and December 1997, USU was prohibited from participating in the military construction process. However, following the December 1997 decision of the Secretary of Defense that the University should remain open, as stated in Program Budget Decision 711, the USU Vice President for Administration and Management (VAM) was directed by the USU President to provide oversight for the resubmission of all documentation and related efforts required for the construction of a fifth building on the USU campus.

The Beginning of a Four-Year Process for an Approved Construction Project. On April 4, 1997, a Health Affairs site team determined that the construction of a fifth building at USU, in Fiscal Year 2001, would eliminate leasing costs and would be cost-effective. On March 26, 1998, Design Authorization 98-N-10 was provided to the Naval Facilities Engineering Command with the following directions: 1) the inclusion was to take place in Fiscal Year 2001; 2) the scope of construction was to include 8,312 gross square meters; 3) the design/construction amount, in 1997, was $15,000,000; and, 4) DD Form 1391 and a Draft Program for Design were provided with the authorization. The Navy Facilities Engineering Command completed its call for contractor bids on the design requirements for the USU construction project and remained on hold until the USU construction was approved by Health Affairs. In May of 1998, Health Affairs determined that construction at USU would not be included in the Fiscal Year 1999 Defense Health Program (DHP) MILCON package; and, the Surgeons General would be required to identify funding from their Medical Construction Programs. *In June of 1998, the Senate Committee for the 1999 Military Construction Appropriation Bill urged* ***"the Department of Defense to address the requirement for a fifth building construction project in the Fiscal Year 2000 budget."***

During 1999, ***the Military Construction Appropriations Bill for Fiscal Year 2000 included the following: "The TRICARE Management Agency is directed to accelerate the design of this project*** (the

construction of a fifth building on the USU campus) ***and to include the required construction funding in its fiscal year 2001 budget request."*** In response to the congressional directive, and, in its capacity as the Executive Agent for USU, on October 26, 1999, the Navy Bureau of Medicine (BUMED) Facilities Planning and Programming Division initiated the contracting process for a Project Planning Study. The USU Project Planning Study, to develop a quantifiable needs assessment for space, began on December 6, 1999; BUMED also established a TriService Study Team to review and validate the identified requirements; and, the USU President also established an *ad hoc* committee to assist the VAM. The first phase of the study was provided in draft form to the TRICARE Management Agency, in January of 2000; the VAM organized inclusive background notebooks, which provided documentation, projected space requirements, and mission-related information covering the program requirements for the nine USU requirements that were included in the Project Planning Study: (1) the unification of the ***GSN*** faculty and students at the USU campus; (2-6) the cost-effective relocation of essential personnel to the USU campus (***GME***, to include the Administrative Office for the National Capital Consortium, ***CHE***, the Military Training Network (***MTN***), Preventive Medicine and Biometrics (***PMB***), and the ***TriService Nursing*** Research Program Liaison Office); (7) address a severe shortage of ***classrooms and lecture halls***; and, (8-9) provide housing for both the ***USU Office of Educational Affairs*** (to include USU readiness and simulation requirements) and critical requirements of the Office of the USU President, to include the ***USU Chaplain***.

BUMED Study Validates the Proposed Construction. The BUMED Study Team focused on two primary areas of concern: 1) the functional shortfall of current and projected requirements for small, multi-functional, and multi-configuration capable classrooms; and, 2) the cost-effective relocation of USU activities from leased space to the USU campus. The BUMED Study Team coordinated a justification/validation process with the Services for the requested space. Following the validation process, a memorandum was completed by BUMED and forwarded by the Navy Surgeon General on February 17, 2000, to the Chair of the USU Executive Committee; the memorandum recommended that the Surgeons General pursue a joint decision to program funding for the proposed construction of Building E on the USU campus. On April 12, 2000, USU was informed by BUMED that a consensus had been reached among the Surgeons General on the following factors, which represented the position of the USU Executive Committee: 1) the project represents validated space requirements and is needed; 2) the current estimated project cost ($9 million) is appropriate; and, 3) the project should be programmed by TMA (TRICARE Management Activity) utilizing standard MILCON processing milestones (i.e., Fiscal Year 2005 or later). ***On September 25, 2001, USU was notified by BUMED that its construction project had been included in the TRISERVICE Medical MILCON Program for Fiscal Year 2006 at a total cost of $9,300,000 (the total was increased to $9,600,000, by TMA, in January of 2003; then, it was increased once more to the current total of $10,350,000, following the S-4 Design Meeting held with TMA on July 20, 2004)***.

Scope of the Construction Project. The total scope of the proposed construction project is 55,220 gross square feet, which includes underground parking. The Program for Design distributes 39,969 gross square feet to meet the University's requirements for ample circulation associated with the movement of students and staff between classrooms (*the underground parking garage includes a total of 14,890 gross square feet; the connector with Building A has 361 gross square feet*). The 39,969 gross square feet will be constructed with a fibre-optic backbone throughout the occupied portions of the building and connected to the existing USU IT network. Breakout of the 39,969 gross square feet approximately reflects as follows: *Education Offices/Administrative Support* - 52 percent; *Classroom/Classroom Support Space* - 29 percent (includes support and storage areas); *General Support* (Toilets/Lockers, etc.) - 11 percent; *Distance Education Production Laboratory* (Studio) - 6 percent; and, a *Computer Learning/Testing Area* (20 Stations) - 2 percent.

All Required Studies for the USU MILCON Project Are Completed. The coordination process for the proposed USU construction project was developed using the Defense Medical Facilities Office, Office of the Assistant Secretary of Defense for Health Affairs, Space and Equipment Planning Systems (SEPS). The Bureau of Medicine, the Engineering Field Activity Chesapeake, the Naval Facilities Engineering Command, and the TRICARE Management Activity, Health Affairs, directly coordinated in the development of the construction project. All studies/analyses were completed and provided in a Project Notebook, dated October 2000. The *Environmental Assessment Study*, initiated in October of 2000, was coordinated and completed; in mid-November of 2001, USU was informed that the proposed construction would not adversely impact the environment; and, an Environmental Impact Statement would not be warranted. A request to the Chief of Naval Operations (CNO) for a formal determination was submitted; ***the CNO's written response, documenting no significant impact/approval of the environmental assessment findings, was dated September 17, 2002***.

TMA Approves Design Authorization for the USU Academic Program Center Project. ***The Military Construction Appropriations Bill for Fiscal Year 2003 included $1,300,000 for the accelerated design of the USU Academic Program Center.*** During December of 2002, BUMED requested that the VAM provide/present a briefing/point paper on the University and a tour of USU for staff from the TRICARE Management Activity (TMA), which was accomplished. Next, the VAM provided an overview of current collaborative activities between USU and the Department of Veterans Affairs (VA). ***On January 8, 2003, USU was provided with documentation from TMA authorizing the design of the USU Academic Program Center Project at $9,600,000 and the approved Program for Design*** (*as indicated above, following the S-4 Design Meeting, the project was increased to a total of $10,350,000 by TMA*).

Ewing Cole Cherry Brott, Architectural and Engineering (A&E) Firm, Selected by the NAVFAC Medical Facility Design Office. The A&E firm selected by the Engineering Field Activity Chesapeake Naval Facilities Engineering Command was ***Ewing Cole Cherry Brott***. On March 17, 2003, representatives from BUMED, the NAVFAC Medical Facilities Design Office (EFA Chesapeake), and the A&E firm met at USU for a preliminary meeting pending the awarding of the contract for design. The USU President, the VAM, and the Facilities Division represented the University.

S-1 Design Meeting - May 21-22, 2003. Following the awarding of the design contract, on May 21-22, 2003, a pre-design (S-1) meeting was hosted at the Washington Naval Yard by EFA Chesapeake. Most of the meeting was spent determining which activities would be placed on the Ground, First, and Second floors of the new building. The University was asked to respond to several action items following that conference; all information was provided to EFA Chesapeake by June 10, 2003. A field investigation took place, which included a site visit to USU to conduct soil borings and measure the surface of the project site area.

S-2 and S-3 Design Meetings. The second design meeting (S-2) with the A&E took place on September 16-17, 2003, at the USU campus. The purpose of the S-2 was to: conduct a review of the S-2 design submittal; identify and resolve all major space program assignments and deficiencies at an early stage in design; develop the massing and aesthetics of the facility; and, establish the scope of the building. Unresolved comments/concerns from the S-2 meeting were incorporated into the S-3 submittal. The S-3 Design Meeting was held on March 1-2, 2004; most concerns were resolved either before, or during, the meeting.

Agreements During the S-2 and S-3 Meetings.

1) *Connecting Corridor:* The new building would have a Ground Floor connection with Building A. The connecting corridor would be enclosed; no HVAC requirements would be addressed in the corridor.

2) *Ground Floor - Classrooms:* The construction would include one large 100 person classroom and smaller flexible classrooms. Moveable partitions were planned for subdividing each pair of small classrooms. USU noted the Distance Education Laboratory might provide some flexibility to increase the space for the large classroom. (*NOTE: The USU distance learning concept changed from video-based to Internet-based, resulting in a reduction of the area/space required*.) The large classroom would include fixed seating along 18" deep tables and a rear exit in the design. All present approved the Ewing Cole (EC) sketch of the revised classroom configuration and related storage areas. BUMED processed USU's written justification requesting a modification to the Program for Design to reflect the reconfigured sizes for the classrooms.

3) *GSN Plaza-First Floor:* The Plaza/First Floor would be designated as the Graduate School of Nursing (GSN) Floor. USU designated that additional open-office work stations should be provided *in lieu of* enclosed offices in the administrative areas. The two co-located departmental conference rooms, belonging to the GSN and OUA, would share a movable wall for expandability into one large conference room.

4) *Building Core Areas and Office Door Locations:* The S-2 locations for stairs, elevator, mechanical, electrical, toilet, and communication rooms were approved. USU requested staggering the doors across corridors to provide offices with additional privacy when the doors are open.

5) *Second Floor:* A conceptual plan was developed that re-arranged the departmental organizations and created more open office systems work stations on the second floor. The two co-located departmental conference rooms (CHE/GME) would share a movable wall for expandability into one large conference room.

6) *Virtual Walk-Through:* A computer-generated interior model walk-through was presented during the S-3 meeting. Renderings were reviewed and selected for the exterior design.

7) *Audio Visual and Communications Equipment:* Ewing Cole coordinated with USU, through EFA Chesapeake, to develop the audio visual and communications requirements. *Wireless* versus *Wired* data/computer systems were coordinated by BUMED and agreed upon during the S-3 Design Meeting.

8) *Partitions and Systems Furniture:* BUMED coordinated systems furniture and acquisition requirements with USU (the USU Logistics Division met with the future occupants to work out office and furniture requirements, which were provided to BUMED for incorporation). Modular or demountable partitions (walls) were not approved. Low height systems furniture partitions could be incorporated.

9) *Issue Papers on Required Funding:* On December 19, 2003, the VAM submitted an issue paper on the funding required for facility maintenance, custodial services, utilities, relocation costs, communications, and outfitting for Building E, as some, or all, of these requirements must be funded in the out-years following construction (*the USU Vice President for Resource Management utilized this information in the DoD Budgeting Process, during Fiscal Year 2004, to request funding for the initial out-fitting and one-time and recurring beneficial occupancy costs projected for Fiscal Years 2006-2011*).

The USU Logistics and ASD Divisions also provided the estimated costs of furniture/copier equipment in Building E (to include whatever may be reutilized from the existing leased space); that report was submitted, by the VAM, to the USU Vice President for Resource Management on January 15, 2004; this information was also included in the USU/DoD Budgeting Process. Similar information for the project was provided, by the VAM, to BUMED on February 17, 2004, as part of the design process.

Agreements Following the S-3 Meeting.

1) *AntiTerrorism Force Protection (ATFP) Design Features:* BUMED received approval to restrict access to Stone Lake Road at both ends of the construction site, which would reduce, but not eliminate, the level of ATFP design and construction features required for the project. Road details, such as Bollards and emergency-only access, were designed; final requirements and cost estimates were coordinated/completed by the USU Security Office and BUMED.

S-4 Design Meeting. The required information for the S-4 Design Meeting was submitted by the A&E to EFA Chesapeake, on July 1, 2004; on July 20, 2004, NAVFAC (EFA/EFD) presented the S-4 package to DMFO (Mr. Sharma/TMA). During that meeting, BUMED and EFA Chesapeake worked out a proposal to add $750,000 to the USU Project (*increasing the USU construction project from $9,600,000 to $10,350,000; the TMA confirmation memorandum is dated August 4, 2004*).

On September 16, 2004, a meeting was held, between BUMED and the Office of Management and Budget, on the Fiscal Year 2006 MILCON. During that meeting, questions arose over the inclusion of the USU project in the Fiscal Year 2006 MILCON. Between October 1 - 6, 2004, BUMED and the VAM prepared information packages addressing the questions raised, during the September 16, 2004 Meeting; all concerns were addressed and resolved. (*Program Budget Decision (PBD-753) issued by OSD on December 23, 2004, did not eliminate the USU MILCON Project; and, so the design process was continued.*)

S-5 Design Meeting. The S-5 Design Meeting (*65 percent submittal*) was held on December 8-9, 2004, at EFA Chesapeake. The S-5 Design Meeting consisted of a review of all technical comments. USU submitted comments on the S-5 package, to include a concern that the connecting corridor, between Building A and the proposed Building E, was not shown as being enclosed. USU was subsequently informed by BUMED that the connecting corridor would continue to be shown without enclosure, due to funding limitations; however, since the connector was not included within the scope of the project, the *Facilities Construction Manual 11010.10F* would allow the University to fund this as a separate project, should end-of-year funding become available.

S-6 Design Meeting. The S-6 Design Meeting (*100 percent submittal*) was originally scheduled to be held on June 13-15, 2005; USU submitted 22 pages of comments in preparation for the meeting. On June 14, 2005, USU was notified that the NAVFAC review team had conducted an interim mechanical submission review, after the S-5 submission, to correct the mechanical design deficiencies; it was determined that the deficiencies were not corrected, so a new date was set for the S-6 Design Meeting. The S-6 Design Meeting took place on July 20-21, 2005.

S-7 Final Design Reviews. The S-7 Design Review of all drawings/specifications was initiated on August 17, 2005; USU completed its response on August 31, 2005; all participants have completed their final reviews. On September 27, 2005, the USU President and his direct reports were briefed, at USU, by the A&E and EFA Chesapeake, who provided the following details: ***1)*** the Construction Award process has been initiated; ***2)*** the contract award is expected to take place by May of 2006; ***3)*** the construction process is projected to take 14 months; and, ***4) July of 2007 is the projected month for the completion of the Building E construction project***.

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Navy Base Allocation of Space to USU. Between 1999 and 2002, as directed by the USU President, the Vice President for Administration and Management (VAM) and the USU Facilities Division led the coordination process with the National Naval Medical Center (NNMC) for the reallocation of space that had been occupied by the Naval Medical Research Command (NMRC); NMRC's relocation process began, during 1999, and was completed, in July of 2001.

The USU President and appropriate leadership were kept totally informed; the VAM coordinated closely with the Vice President for Resource Management during the following process: 1) confirmation of adequate funding to support the acquisition of new space (*the Facilities Division coordinated cost estimates for information systems requirements; communication systems; office furniture and equipment; minor construction; and, maintenance, to include utilities and janitorial services*); and, 2) a successful coordination process with NNMC, to include the completion of a separate Memorandum of Understanding for each of the five buildings (*USU was allocated responsibility for Buildings 59, 28, 79, 53, and 139; Building 59 was made totally available to USU, during 1999; Buildings 28 and 79 were turned over to the University, during 2000; Building 53 was assumed by USU in July of 2001; and, Building 139 was allocated to USU, during 2002*).

Building 53. Building 53 is a two-story structure with an additional mid-level basement that houses the building and hyperbaric mechanical support systems. The allocation of Building 53, which includes approximately 32,285 gross square feet, addresses USU's urgent requirements for laboratory, administrative, and storage space; these requirements will **not** be addressed by the proposed construction of a fifth building on the USU campus. Building 53 includes 12 large laboratories and several thousand usable square feet of administrative space. At the request of the USU President, the Dean of the SOM directed his space committee to make recommendations, through him, to the USU President for the allocation of space on the second floor of Building 53. That process was completed by December of 2002.

Building 59. Building 59, a two-story structure, has 4,072 gross square feet, which include an immersion pool/tank, a physiology lab, an instrumentation lab, and divers' lockers. Following minor renovations, completed during 1999, investigators from the Department of Military and Emergency Medicine moved into Building 59.

Building 79. Building 79, adjacent to Building 59, is a two-story structure with an unfinished second floor; it offers approximately 1,400 gross square feet on the first level. In September of 2003, funding was obligated for the initial design and renovation of the building; that initial phase was completed by mid-2005.

Building 28. Building 28 is a two-story structure with a total of 5,155 gross square feet. Renovation of the second floor was completed and by mid-2002, it was used by two USU activities: the Graduate School of Nursing (1,206 useable square feet) and the SOM Department of Medical and Clinical Psychology (1,127 useable square feet). The renovation of approximately 1,619 square feet of space on the first floor was completed in June of 2004; it houses the USU/DoD Center for Education and Research in Patient Safety (821 useable square feet) and the USU Center for Health Disparities Research and Education (798 useable square feet).

Building 139. Building 139 is a one-story structure with approximately 5,562 square feet, which was made available for the USU SOM Department of Surgery and the USUHS/Windber Medical Center/ Walter Reed Army Medical Center/Department of Navy Clinical Breast Care Project, during 2002. This research project utilizes a multidisciplinary approach as the standard of care for treating breast diseases and breast cancer. The multidisciplinary model integrates prevention, screening, diagnosis, treatment, and continuing care; the project is further unique in the proposed incorporation of advances in risk reduction, informatics, tissue banking, and research. The Clinical Breast Care Project paid for all required renovations; it also paid all costs associated with the building to include utility, maintenance, and custodial requirements, during 2004.

Allocation of 18,298 Square Feet of Useable Space.

Building 53 - By December of 2002, four USU School of Medicine (SOM) Departments: Clinical Pharmacology; Psychiatry; Radiology and Radiological Sciences; and, Neurology occupied ***11,969 useable square feet***. The Graduate School of Nursing (GSN) was allocated ***635 useable square feet***; and, the Multi-Disciplinary Laboratories (MDL) was provided with ***676 useable square feet*** for a USU conference room. Thus, the SOM, GSN, and MDL occupy a total of 13,280 useable square feet in Building 53.

Building 59 - This building is occupied by the SOM Department of Military and Emergency Medicine with ***1,066 useable square feet***.

Building 28 (First Floor) - A portion of the first floor in Building 28, ***1,206 square feet of useable space***, is occupied by the Graduate School of Nursing; the SOM Department of Medical and Clinical Psychology also occupies ***1,127 square feet of useable space*** on the first floor; ***(Ground Floor) -*** The USU/DoD Center for Education and Research in Patient Safety occupies ***821 useable square feet*** on the ground floor of Building 28; and, the USU Center for Health Disparities Research and Education occupies ***798 useable square feet*** on the ground floor of Building 28.

Summary - In accordance with the USU Strategic Plan, which calls for the acquisition of additional laboratory and administrative space for the University programs, ***by December of 2002, a total of 18,298 additional square feet of useable space had been provided to the USU community*** (*the SOM occupies 14,162 square feet of useable space; the GSN occupies 1,841 square feet of useable space; the MDL manages a USU conference room with 676 square feet of useable space; and, two University Centers occupied 1,619 square feet of useable space*).

Renovation of the Newly Allocated Buildings. Due to the condition of the newly acquired buildings, renovation efforts have been on-going. For example, in September of 2002, with the approval of the USU President, the VAM successfully coordinated with Resource Management and the Naval Facilities Engineering Command (NAVFAC) to complete the required documentation for the obligation of funding to renovate the lower level of Building 28. It was decided by the USU President that the renovated space would be allocated for the USU/OSD Patient Safety Program (821 useable square feet) and the USU Center for Health Disparities Research and Education (798 useable square feet); the renovation project, in Building 28, was completed in June of 2004. New roofs were installed on Buildings 28, 53, and 59, during 2003. Significantly, resources were funded, at the end of 2003, for the renovation of the air handling units in Building 53, which was completed in July of 2004. Requests for future renovation requirements and upgrades, in these newly acquired buildings, are continuously being planned and incorporated into the USU Facilities Division Project Listing, in anticipation of available end-of-year resources.

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USU Facilities Division Project Listing Serves as the Strategic Plan for Construction and Renovation Requirements at the University.

Background. For eight years, the USU Facilities Division, under the direction of the USU Vice President for Administration and Management (VAM), has successfully coordinated with the Naval Facilities Engineering Command (NAVFAC) to streamline and maximize the process for obligating funding for urgently required renovation projects throughout the University's infrastructure, during, and at the end of, each Fiscal Year. Such a process requires extensive documentation and must comply with DoD regulations for the acceptance of funding by NAVFAC or the USU Contracting Office.

An On-Going Process. During each Fiscal Year, the USU Facilities Division and the USU Director of Logistics meet weekly with NAVFAC personnel and the VAM to: 1) ensure open communication; 2) resolve on-going concerns and issues during the implementation of previously funded projects; and, 3) ensure the preparation of documentation for future projects and the on-going obligation of funding as it is identified by the USU Vice President for Resource Management. The Project Listing is regularly updated and provided by the USU Facilities Division to all participants at both NAVFAC and USU to ensure that this demanding process is both open and accurate, to include the required monitoring of on-going projects, and the maintenance of complete and accurate status information.

The Facilities Division Project Listing currently includes the following information: ***1)*** the status of unfunded projects for the current Fiscal Year, to include design and construction costs; ***as of June 17, 2005, there were 68 active projects in this section of the Project Listing*** (*43 facilities related projects and 25 laboratories identified for renovation*); 2) totals and status of completed documentation submitted by the USU Facilities Division to the USU Office of Resource Management for projects recommended for funding in the current Fiscal Year (*2005*); 3) totals and current status of projects already funded during the current Fiscal Year (*2005*); as of June 17, 2005, $210,917 had been funded during Fiscal Year 2005; and, 4) the current status of all previously funded projects during past Fiscal Years, as of June 17, 2005, reflect as follows:

- ***Fiscal Year 2002:*** During Fiscal Year 2002, a total of $10,051,460 was obligated by USU with NAVFAC, with *completed projects* at a total of $7,883,905;

- ***Fiscal Year 2003:*** A total of $12,444,967 was obligated, with *completed projects* totalling $5,839,521; and,

- ***Fiscal Year 2004:*** A total of $7,497,848 was obligated, with *completed projects* at a total of $4,490,110.

This process is both time consuming and complex; however, it has been found to be most acceptable by both NAVFAC and USU management. The USU Facilities Division Project Listing serves as the ***Strategic Plan for the Construction and Renovation Requirements*** for the entire USU complex. As projects are completed, new requirements are constantly being identified by the NAVFAC engineers and the USU Facilities Division; once recognized, they are entered into the Project Listing and begin the documentation and funding process. As a result, the USU campus (*to include Buildings 28, 53, 59, 79, and 139*) is well maintained and reflects excellent stewardship on the part of the leadership of the University. Without the Facilities Division's time-proven process, the University would not be in a position to accept funding from Health Affairs, or other sources, during, or at the end of, each Fiscal Year. During the past four years, the support from the USU Vice President for Resource Management (RM) has been on-going. The VAM and Facilities Division spend many hours coordinating with RM to ensure that the infrastructure of the USU campus is well maintained, through the obligation of funding with NAVFAC. The on-going selection, design, and renovation of research laboratories has also been streamlined through the decision-making process established by the Dean of the School of Medicine on July 2, 2002; the laboratory renovation process is coordinated with the USU Vice Presidents for Research and Resource Management.

43,578 Square Feet of Laboratory Renovations Have Been Completed Throughout Buildings A, B, C, and D. During 2000, with the approval of the USU President, and the identification of funding by the Vice President for Resource Management, the VAM and the USU Facilities Division provided oversight for the renovation of 2,310 square feet of laboratory space throughout the USU complex. Laboratory renovation was completed and coordinated through the Dean, SOM, for four Departments: Biochemistry; Obstetrics and Gynecology; Radiology and Radiological Sciences; and, Anatomy, Physiology and Genetics. During 2001, one laboratory with 468 square feet was renovated within the Department of Biochemistry. With the 33,127 square feet of renovated laboratory space that took place from 1993 through 2000, combined with the 468 square feet of renovation, during 2001, the total of renovated laboratory space was approximately 33,595 square feet, or 38.6 percent of the 86,926 square feet of laboratory space in the USU complex.

During 2003, funding was identified for laboratory renovations through collaborative efforts by the VAM and the USU Facilities Division with the Dean of the School of Medicine and the Vice Presidents for Resource Management and Research. In 2003, 1,862 square feet of laboratory space was renovated for three SOM Departments: Obstetrics and Gynecology (two laboratories - 460 square feet); Microbiology and Immunology (two laboratories - 690 square feet); and, Anatomy, Physiology, and Genetics (two laboratories - 712 square feet). Combining the total of 33,595 previously renovated square feet with the 1,862 square feet renovated during 2003, totals 35,457 square feet; or, 40.8 percent of the 86,926 total square feet of laboratory space at USU.

During 2004, $2,301,879 was funded for laboratory renovations through collaborative efforts by the VAM and the USU Facilities Division with the Dean of the School of Medicine and the Vice Presidents for Resource Management and Research. In 2004, 8,121 square feet of laboratory space was renovated for nine SOM Departments: Pharmacology (four laboratories - 1,424 square feet); Pathology (two laboratories - 690 square feet); Anatomy, Physiology and Genetics (two laboratories - 690 square feet); Neurology (four laboratories - 842 square feet); Microbiology and Immunology (one laboratory - 460 square feet); Psychiatry (one laboratory - 460 square feet); Preventive Medicine and Biometrics (two laboratories - 1,755 square feet); Medicine (one laboratory - 900 square feet); and, Obstetrics and Gynecology (one laboratory - 900 square feet). ***Combining the total of 35,457 previously renovated square feet with the 8,121 square feet renovated during 2004, totals 43,578 square feet; or, 50.1 percent of the 86,926 square feet of laboratory space in Buildings A, B, C, and D***.

Renovations in Building 53. Throughout 2000 - 2003, with the approval of the USU President, and the identification of funding for projects by the Vice President for Resource Management, *the USU Facilities Division provided oversight for contracted work, support, and manpower from its Division staff for the renovation of a total of 7,899 square feet of laboratory and administrative space in Building 53*. The SOM Departments of Medicine (Clinical Pharmacology - 2,630 square feet), Psychiatry (1,932 square feet), and Radiology and Radiological Sciences (2,026 square feet) represented a total of 6,588 square feet of renovated space for the SOM; the Graduate School of Nursing had 635 square feet renovated for mentoring and educational use; and, the MDL Division of Teaching and Research Support had a conference room with 676 square feet renovated for use by the entire USU community. All of the extensive relocation, equipment and furniture requirements required by the USU personnel assigned to these renovated spaces were coordinated by the USU Logistics and Administrative Support Divisions. During 2003, $331,747 was funded for replacing the air handler units; and, $227,106 was funded for installing natural gas capabilities, in Building 53.

During 2004, the air handler units were replaced and natural gas installed, via funding identified at the end of Fiscal Year 2003. The following requirements were funded during 2004: 1) installation of a glasswasher unit - $32,359; 2) upgrade to the control panel on the Nash Laboratory Vacuum pump - $33,865; repair of the emergency feeders - $63,721; designation of handicapped parking spaces - $6,500; and, the replacement of the water pump for the building generator - $13,404. Also during 2004, 1,032 square feet of laboratory space was renovated for two SOM Departments: Family Medicine (361 square feet) and Psychiatry (671 square feet).

Heating/Ventilation/Air Conditioning (HVAC) Replacement Project. Following the identification of environmental and health concerns reference the necessary air exchanges required throughout the USU complex and the inability to procure replacement parts for the antiquated USU HVAC systems in Buildings B, C, and D, the VAM and the Facilities Division, with the approval of the USU President, coordinated with NAVFAC to design a complete replacement of the USU HVAC system. Building B was selected as the first area for renovation because it had the poorest air exchange in its laboratories. Phases 1 through 7 were completed. Phases 1-7 ($8,900,000) included the construction of a mechanical room and the replacement of the HVAC system throughout Building B; this project began during 1999 and was completed in October of 2001. Phases 8 ($2,456,260) and 9 ($2,403,680) included Building C; they were completed at the end of 2002. Phase 10 ($4,200,383) included Building D and was completed, in 2004. This expansive HVAC renovation project, including approximately 330,000 square feet, required the continuous relocation of various USU personnel; both the USU Logistics and Facilities Divisions dedicated extensive time and

support to minimize disruption to the USU mission. (*Since Building A includes a different HVAC system than Buildings B,C, and D and replacement parts are available for its HVAC system, air-handlers and duct work in Building A will be renovated as appropriate, in future years*.)

Anatomical Teaching Laboratory Renovation Efforts. During 1998, it was identified that the backroom/storage areas containing the freezers and work space for the Anatomical Curator required significant renovation. Late in Fiscal Year 2001, the VAM requested a review of the project and began coordination with the USU Vice Presidents for Resource Management and Teaching and Research Support for the renovation of both the work areas and the freezers. With the approval of the USU President, and the identification of funding by the Vice President for Resource Management, the Facilities Division coordinated with NAVFAC for an accelerated design for construction. That effort concluded successfully and $201,254 was obligated for the construction requirements, during September of 2001. Resource Management, through the USU Contracting Directorate, also obligated funding for the purchase of new freezers. The project was successfully completed, during March of 2002. During 2003, funding was made available to replace the air handler unit #1 ($1,751,532), which is critical to the Anatomical Teaching Laboratory. Planning and design took place throughout 2004; and, the installation of the new air handler unit was completed, as scheduled, during 2005.

Plaza and Elevator Repair. When the University was originally constructed, a drainage system had not been provided under the plaza. As a result, there had been a steady leakage of water throughout the underground garages and various areas at the ground floor level. Separate attempts had been made to correct this concern over the years; however, none resolved the problem. During 2000, the Facilities Division worked with NAVFAC to design a repair project for the plaza, which included four phases. The first two phases were funded during 2000 and completed. Resources in the amount of $654,112 were funded in September of 2001 for the final two phases. Work was completed, during 2002, and the contractors also finished some minor related projects to include the replacement of concrete.

Funding was obligated for the repair/renovation of the elevators in Building A (three elevators), Building B (four elevators), and Buildings C and D (four elevators). Determination of the order of renovation for the 11 elevators throughout Buildings A, B, C, and D was based on the number of repair calls and general deterioration of the individual elevators. The renovation of the 11 elevators took place, one at a time, to reduce the level of inconvenience to the USU community; estimated construction time per elevator was four months. Construction of the Building A elevators began, in August of 2001, and was completed during December of 2002. Construction of the Building B elevators began, in October of 2002, and was completed in late 2003. Construction of the Building C and D elevators began, in November of 2003, and was completed, in April of 2004.

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USU Campus Meets National Naval Medical Center Fire Regulations.

Background. Following the events of September 11, 2001, regulations for the enforcement of fire codes have been revitalized throughout the Federal Government. Within minutes of the terrorist attack at the Pentagon, occupants found themselves struggling to breathe due to heavy smoke, while they crawled along office floors and hallways to escape the resulting fires. This experience has reenforced the absolute necessity of providing written instructions, training, detailed evacuation routes, and unrestricted escape routes (hallways) for all personnel. Due to the shortage of office and storage space, throughout the USU campus, complying with the mandatory fire regulations has proven to be an on-going, difficult, yet successful process. On August 14, 2002, the USU received a memorandum from the National Naval Medical Center (NNMC) Fire Chief that identified specific areas of concern and fire code deficiencies. The USU Vice President for Administration and Management (VAM) coordinated a memorandum that was distributed to all USU personnel, on September 12, 2002. That memorandum addressed two major areas of concern: 1) occupant instruction and training regarding fire safety; and, 2) the clearing of all USU hallways in Buildings A, B, C, D, 53, 59, and 28. The USU Facilities, Logistics, Administrative Support, and Security Divisions worked directly with the SOM department chairs and administrative officers to meet the NNMC fire and safety regulations.

Actions Completed to Bring the University into Compliance with Fire Regulations. The first action concerned the USU Instruction providing the *Occupant Emergency Plan* for the University; it was updated and re-issued on October 25, 2002. Copies were provided to all activity heads and chairs and the instruction was also made available on the USU Web Site. A process has been implemented so that all current and new employees are made aware of the Occupant Emergency Plan. Next, *Emergency Evacuation Personnel Listings* of those USU personnel designated with specific responsibilities during an evacuation such as hallway monitors, assistants for the handicapped, etc., were updated and issued to all activity heads and chairs. The Director of the USU Security Division met with all personnel included on the listings to ensure that they were fully prepared to carry out their responsibilities. The USU Security and Facilities Divisions also *identified and verified all evacuation routes and posted evacuation signs throughout the USU campus*; this information is also posted on the USU Web Site. Following an emergency evacuation drill coordinated with the NNMC Fire Chief, on November 8, 2002, the VAM issued a briefing paper to the USU community on November 19, 2002, on *emergency evacuation procedures*. The focus of the briefing paper was on the critical requirement for compliance and specific directions on what actions should be taken during an emergency evacuation. All activity heads and department chairs are responsible for ensuring that all of their personnel know the evacuation routes and procedures to be followed during an emergency evacuation. Two training sessions were coordinated by the USU Security Division, during January of 2003.

The most difficult requirement for compliance included *the clearing of all hallways, throughout the USU campus*. All hallways had to be cleared except for the following items: already existing duplicating equipment and one filing cabinet per principal investigator/course instructor. Nothing can be placed on top of the filing cabinets; no storage cabinets may be placed in the hallways. Approved items must be placed on only one side of the hallways, to include the carts and trash cans that are placed inside the laboratories at the end of each working day. The VAM and the Facilities, Logistics, Administrative Support, and Security Divisions established a schedule for meeting the NNMC Fire Regulations and conducted inspections throughout the entire campus. *Since the process began, during late 2002, and was successfully completed, in March of 2003, over 200 filing cabinets have been removed from the USU campus*. This is an incredible accomplishment on the part of the USU community. It was a time-consuming and difficult process, which included an extensive review and disposition of files, equipment, and supplies by the activity heads, chairs,

and their administrative officers. In support of this effort, over 100 file boxes have been stored in the record management holding area of the Administrative Division; and, additional storage areas were constructed, in coordination with the NNMC Fire Chief, on the second-floor walk-way between Buildings B and C. Those storage areas were distributed in a manner to ensure compliance with the NNMC Fire Regulations.

During late 2004, ***the NNMC Fire Chief informed USU that both sides of the hallways must be totally cleared***. Since that time, the ASD, Facilities, and Logistics Divisions have increased efforts to assist the Departments and Activities in the further reduction of their filing cabinets and office equipment. The VAM and the Facilities, Logistics, Administrative Support and Security Divisions continuously inspected the hallways of the entire campus, during 2004.

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Resource Management Programs.

Background. The areas of responsibility described below are under the oversight of the USU Vice President for Resource Management. **Mr. John E. Dexter** was selected as the first USU Vice President for Resource Management, in June of 1990; he served in that capacity until November 19, 2000. Following an extensive search, the second USU Vice President for Resource Management, **Mr. Stephen C. Rice**, was selected and assumed the position, on November 20, 2000.

Financial & Manpower Management. The University's Financial & Manpower Management (FMG) Directorate successfully closed out the Fiscal Year 2004 Operation and Maintenance account (one-year money) with an obligation rate of 99.995 percent. During 2004, the University was able to make further progress towards resolving USU's equipment backlog, funding over $1,200,000 in educational, administrative, and clinical research equipment.

During Fiscal Year 2004, the University set an outstanding record with only one travel cardholder delinquency becoming 60 days past due. Considering that the University has approximately 1,000 cardholders, and every month at least 300 individuals travel spending an average of $175,000 in charges, this record of payment has set the standard for all Defense Agencies. Once again, the level of support from the President, Deans, and Vice Presidents ensured the continued success of this highly visible program.

The University's bill for accounting support from the Defense Finance and Accounting Service (DFAS) increased by less than one percent in Fiscal Year 2004, to $458,000, despite the fact that, in the past year, DFAS imposed rate increases ranging from 16 to 29 percent across its various categories of support. This extraordinary achievement is a continuing result of the Accounting Systems & Policy (ASP) Division's oversight and provision of support to DFAS in the preparation of University accounting reports. One major development was ASP's automation of the trial balance report; ASP and Resource Management Information (RMI) collaborated on converting the College and University Financial System (CUFS) trail balance into standard United States General Ledger format. Overall, FMG was able to reduce direct billable hours from 3,314 hours to 2,016 hours, a savings of 1,298 hours with a resulting cost avoidance totaling $105,500.

FMG is actively participating in the University's effort to find a modern replacement accounting system for CUFS that is compliant with Federal and DoD requirements. FMG has worked closely with DFAS and the TRICARE Management Activity (TMA) to help implement the daily transfer of detailed accounting data into the DFAS Corporate Database (DCD) from CUFS. This is an ongoing effort and resources are continuing to be expended in its development.

Two important financial management initiatives were continued, during Fiscal Year 2004. First, Resource Management staff continues to add vigor to the mid-year review process, meeting individually with each Department Chair, Vice President, and Activity Head, resulting in an emphasis on shared problem solving for budgetary issues. Second, there is an increased level of detail and justification required in the University's budget submissions, which leads to a clearer articulation of priorities and the better use of resources.

Resource Management Information Office. The Resource Management Information Office (RMI) is comprised of the Systems Administration and Information Systems & Services Branches. The RMI develops, maintains, and administers the University resource management information systems for over 500 users located at USU and AFRRI. These systems consist of the College and University Financial System (CUFS), DoD's Standard Procurement System (SPS), web publication of financial reports, and the Office of Research Administration (REA) Grants Management System, *Coeus*.

In 2004, RMI was an essential participant in several program development and improvement projects, to include the following activities. ***Defense Agencies Initiative.*** RMI is actively involved with the Defense Agencies Initiative (DAI), which is an ongoing DoD program with an objective to provide a JFMIP approved accounting and financial management system for all Defense Agencies. RMI attends all DAI implementation functions conducted by the Defense Finance Accounting Service (DFAS) and the Military Health System (MHS) to ensure that the University's interests and requirements are identified. ***Successful Conversion of the Monthly Trial Balance Data.*** RMI and FMG collaborated on the development of a CUFS program that automates the conversion of monthly trial balance data into the standard United States General Ledger format. This programming effort was a major factor in greatly improving the accuracy of the University's monthly external reporting, as well as, reducing the growth of the DFAS charges for accounting support, during 2004, by $99,000. ***Upgrade of DoD's Standard Procurement System to Version 4.2.2.*** RMI facilitated a major software upgrade of DoD's Standard Procurement System (SPS) to Version 4.2.2. This upgrade corrected several system defects and is a pre-requisite to improving DD350 reporting capabilities and exploring potential SPS/CUFS interfaces. ***Facilitation of an Accelerated Reporting Schedule for DFAS.*** RMI devised and implemented a CUFS monthly *close* process to facilitate an accelerated monthly reporting schedule, as mandated by DFAS.

Grants Management Office. In its fifth year of operation, the Grants Management Office (GRT) awarded seven new grant agreements, worth more than $6,200,000; and, GRT completed over 100 modification actions to existing awards. Currently, there are 146 active USU grant agreements, ranging from $18,000 to $54,000,000. The total award value of all awards is approximately $403,861,000.

There are more than 75 principal investigators conducting work on research projects awarded to 12 external grant recipients. Most of the awards go to the Henry M. Jackson Foundation and the remaining go to other non-profit organizations. There are about 28 Agencies providing funding to support these awards. GRT processes more than 48 invoices per month; these invoices are paid at nine different pay stations, both at DoD and other Federal sites.

GRT also provides oversight for the TriService Nursing Research Program (TSNRP), a $6,000,000 annual program with more than 70 grants. TSNRP is a congressionally-funded program, supported by a staff and an Executive Director, who also serves as a Deputy to the USU Grants Officer.

Other significant accomplishments, in 2004, include the following activities. ***Support to the Navy Medical Research Command.*** Under a USU/Navy Medical Research Command (NMRC) agreement, the NMRC provided funding to pay annual personnel costs for two (contracted) grant specialists to assist with managing NMRC-sponsored research projects. One specialist is assigned to the Office of Research Administration and another is assigned to GRT. There are currently 29 NMRC-sponsored grant agreements that total more than $82,000,000. ***Met All Scheduled Award Dates for Congressionally Funded Projects.*** GRT successfully met all scheduled award dates for Fiscal Year 2004 Congressionally funded research projects. ***Two GRT Personnel Complete Training.*** During 2004, two grant specialists successfully completed the Grants Management Certificate Program. ***Renovation of Office Space.*** During the past year, the GRT office space was renovated to provide two additional workstation areas, as well as, additional storage space.

Contracting Directorate. During 2004, the USU Contracting Office continued to provide the University community with all required goods and services. The staff endeavored to provide the highest and most responsive level of service, while fully complying with all Federal acquisition regulations. The procurement approach employed consists of the contracting staff teaming with the requestors to accurately describe the government's requirement, providing appropriate notice (including the factors to be considered), evaluating all offers received, awarding to the firm that offers the best value, and administering the purchase to ensure that the University receives what it needs and ordered and that the contractor is paid in a timely manner.

In Fiscal Year 2004, the staff awarded nearly 700 reportable actions for a total of approximately $25,000,000, despite staffing levels, that at times, dipped to fifty percent. The University exceeded its Fiscal Year 2004 goal for Small Businesses and Small Disadvantaged Business Utilization. ***Of the 15 organizations reporting as Other Defense Agencies, USU reported the highest percentage of dollars spent with Small Businesses, Small Disadvantaged Businesses, 8 (a) Businesses, and Women Owned Businesses***. These results demonstrate a strong commitment to the Socio-Economic Initiatives approved by the United States Congress and codified in the Federal Acquisition Regulations.

The University's use of the Government Purchase Card reached $10,760,000, in 2004. The University's Program consists of approximately 200 cardholders and 82 billing officials who made 18,357 purchases, during 2004. This procurement authority, decentralized throughout the University to individual cardholders within the departments, has revolutionized the acquisition of required items. The USU departments and activities routinely obtain next-day desktop delivery of office supplies, saving both time and money in the process, which allows the Contracting Office to focus on the *big-ticket* items. The Government Purchase Card Program is the responsibility of the Contracting entity within each organization. The USU Contracting Office serves as the Agency Program Coordinator and trains all of the cardholders and billing officials; establishes and maintains accounts for all cardholders and billing officials; publishes training materials and standard operating procedures; and, conducts annual reviews of the departmental accounts.

In May of 2004, **Mr. Anthony M. Revenis, J.D., was appointed as the Director of Contracting**. Mr. Revenis returned to USU, where he had served as the Director of Contracting, from 1986 to 1990. For the past 13 years, he had served as the Senior Contracting Officer in the Office of the Director at the National Institutes of Health (NIH), where he specialized in contracting for health communications and professional services. In 2002, he received the prestigious NIH Director's Award for his innovative and streamlined contracting methods. The hallmark of his NIH experience was an extremely high level of customer and contractor satisfaction; Mr. Revenis intends to transfer that success to the USU community.

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II. READINESS

Mr. Secretary, in August of 2004, you recognized that USUHS' academic centers and research programs have established international credibility for: military unique medical expertise; communication and assessment of military medical humanitarian assistance training; addressing traumatic stress in uniformed and civilian health care communities; and, developing radiological countermeasures and unique training for the response to radiological emergencies. In addition, USUHS is recognized by the Association of American Medical Colleges (AAMC) as the one place where physicians of tomorrow get thorough preparation to deal with many contingencies, including the medical aspects of chemical and biological terrorism. USUHS students learn how nuclear, biological, and chemical agents act on the human body and what to do in the event of a suspected exposure... As our Armed Forces are being deployed into combat zones, USUHS graduates ensure that these superb uniformed personnel are provided with quality care from the preventive measures taken to protect their health, to the moment of injury, through their release from hospitalized treatment.

- ***United States Senators:*** **The Honorable Paul S. Sarbanes; The Honorable Barbara A. Mikulski;** ***Members of the United States House of Representatives:*** **The Honorable Chris Van Hollen; The Honorable Benjamin L. Cardin; The Honorable Elijah E. Cummings; The Honorable Steny H. Hoyer; The Honorable C.A. Dutch Ruppersberger; The Honorable Albert R. Wynn,** Letter to the Secretary of Defense, April 1, 2005.

I (have) **witnessed the horrific, combat-related death and maiming of soldiers. The importance of military medicine first became evident to me from experiences as a line officer** (during combat in Vietnam)**. Modern military operations require physicians and surgeons to be deployed forward on the battlefield in order to return combat soldiers to duty as quickly as possible and minimize the loss of life and limb among the seriously wounded. This new kind of battlefield requires a new type of**

medical officer - a professional military medical officer who is trained to be an integral part of the forward combat team as it maneuvers over large distances to engage the enemy. USUHS is the only institution in the nation that produces professional military medical officers who are specifically trained to care for our men and women in uniform during combat operations. In this regard, it is a precious national resource.

- **The Honorable Lawrence C. Mohr, M.D., F.A.C.P., F.C.C.P., Member, USU Board of Regents, Former White House Physician to the President,** Letter to USU, April 12, 2005.

For many years, The Military Coalition has committed its support for the Uniformed Services University of the Health Sciences (USUHS). The Coalition would sincerely appreciate your continued attention and ongoing support for our Nation's only Federal university dedicated to medical readiness… The Secretary of Defense refers to the USUHS graduates as the "backbone" of the Military Health System (MHS) and he has officially recognized that USUHS academic centers and research programs have established international credibility for: military unique medical expertise; communication and assessment of military medical humanitarian assistance training; addressing traumatic stress in uniformed and civilian health care communities; and, developing radiological countermeasures and unique training for the response to radiological emergencies... Fifty-one percent of physicians with the Army Special Operations Forces are USUHS School of Medicine (SOM) alumni; and, one out of every three physicians with the Special Operations Forces across the Army, Navy, and Air Force are USUHS SOM graduates. The MHS could not easily identify or hire civilian physicians who would accept the critical risks associated with combat care.

- **The Military Coalition, Signed by 35 Military Associations,** Letter to the Under Secretary of Defense for Personnel and Readiness, April 13, 2005.

In December of 1998 and 2001, the Association of American Medical Colleges confirmed the critical role of USUHS in national security by recognizing that USUHS is the one place where physicians of tomorrow, obtain today, thorough preparation to deal with many contingencies, including the medical aspects of chemical and biological terrorism. USUHS not only educates its own graduates, but also provides a significant national service through its continuing medical education courses for military physicians in combat casualty care, tropical medicine, and medical responses to terrorism, courses not available through civilian medical schools. Today, USUHS alumni are globally deployed and providing essential care for our Armed Forces in every theater of operation... Over the past 13 years USUHS has gained recognition and evolved into the Academic Center for Military Medicine... Today, USUHS prepares its career-oriented physicians, advanced practice nurses, and scientists for the practice of health care in contingency environments. USUHS alumni possess the essential knowledge, skills, and attitudes required during Joint Service deployments. Relevant knowledge in the psychological stresses of combat and trauma and the medical effects of nuclear, chemical, and biological weapons and extreme environments have been integrated throughout the USUHS educational programs.

- **The Honorable Daniel K. Inouye, United States Senator,** *Tribute to James A. Zimble, M.D.,* Congressional Record, July 6, 2004, page S7575.

In my last 6 months, here in Afghanistan, I have diagnosed and/or treated malaria, typhoid fever, polio, retinoblastoma, leptospirosis, leishmaniasis, rickets, kwashiorkor, beri-beri, extra pulmonary and pulmonary tuberculosis, a variety of intestinal parasites, frostbite, mumps, and rheumatic fever. My education at USUHS prepared me to recognize and treat these diseases, many I had never seen in the United States, that are common in areas where we currently conduct military operations...

Special Operations Forces are dedicated, professional, fit and highly trained individuals. A high degree of professionalism and military bearing are the standard. USUHS provides (the) **SOF with military physicians who fit in and excel in this community... Physicians in the Special Operations Forces community are at times required to operate well forward in austere environments with very little ancillary support. They often encounter problems without a *book* solution. The USUHS curriculum prepares you for this.**

- **Major Robert Mabry, MC, USU SOM Class of 1999, Unit Surgeon, Army Special Operations Forces, Afghanistan,** Correspondence with USU, April 13, 2005.

Kerkesner

The National Military Veterans Alliance (NMVA), a group of 29 member associations, has strongly supported the continuation and expansion of the Uniformed Services University of the Health Sciences (USUHS). The NMVA would sincerely appreciate your continued attention and on-going support for our Nation's ONLY Federal university dedicated to medical readiness and the provision of continuity and leadership for the Military Health System (MHS)… The Congress established USUHS to provide continuity, leadership and ensure medical readiness for the MHS. The MHS requires a steady source of highly competent, uniquely trained, deployable military physicians and advanced practice nurses. Congress created USUHS and the Armed Forces Health Professions Scholarship Program (HPSP) to cost-effectively meet this requirement in the absence of a physician draft; this combination has well served the Nation. USUHS successfully provides a corps of career-oriented uniformed medical officers; the HPSP has provided the larger portion of physicians who complete their obligated service and leave active duty for the civilian sector… As our Armed Forces continue to be deployed into combat zones, USUHS graduates ensure that these superb uniformed personnel are provided with quality care from the initial preventive measures taken to protect their health, to the moment of injury, through their release from hospitalized treatment. USUHS has proven to be an essential component of medical readiness for the MHS. The National Military Veterans Alliance respectfully requests that the Congress encourage the Department of Defense to continue in its strong support for USUHS.

- **The National Military Veterans Alliance, Composed of 29 Member Associations,** Letter to **The Honorable Ike Skelton, United States House of Representatives,** March 28, 2005.

Kerkesner

II. THE F. EDWARD HÉBERT SCHOOL OF MEDICINE

I write to express the Association's strong support for the unique role and mission of the Uniformed Services University of the Health Sciences... this institution's alumni provide the backbone of the senior leadership of the three services' medical departments.

Faculty at USUHS are widely recognized among those of peer institutions for the excellence of the medical education program and are frequent invited speakers at our annual meetings on this important topic.... Other programs at USUHS in nuclear and biological warfare defense and operational medicine simply do not exist at any of the Nation's civilian medical schools. At no other institution are medical students taught about the medical response to weapons of mass destruction...

USUHS graduates have demonstrated a commitment to serving their country in numbers and to a degree that is unrealistic to expect from civilian physicians. At a time when this nation's military operations are diverse and changing, we need a corps of dedicated individuals who are trained and willing to respond to these challenges.

- **Jordan J. Cohen, M.D., President, Association of American Medical Colleges,** Letter to the Office of the Secretary of Defense, April 27, 2005.

ESTABLISHMENT

Background. From 1945 to 1950, there was an acute deficit of medical experience resulting from the rapid downsizing after World War II. The loss of physicians was so acute, and retention so poor, that the Army and Navy medical departments began residency programs as a recruitment and retention device. In 1950, the physician shortages forced the involuntary recall of reservists and also forced the retention of those eligible to retire.

After the Korean War, the United States, for the first time in peacetime, maintained large, active-duty military forces through conscription and allocated significant resources to build and maintain a world-wide military presence. The medical departments of the Army, Navy, and Air Force participated in this expansion and relied on conscription. During this time, over 90 percent of all graduating physicians and dentists served on active duty for an average of two years.

During the conflict in Vietnam, from 1964 to 1972, medical support of a sophisticated nature was deployed in fixed facility hospitals with staff and equipment equal to those of academic medical centers in America. The helicopter essentially replaced the motor ambulance for evacuation; and, air evacuation to the United States became routine. Capitalizing on the lessons learned in past wars, preventive medicine kept the infectious disease and non-effectiveness (*inability of the forces to participate in combat activities*) rates at the lowest levels of any war, while rapid evacuation and advanced surgery reduced the died-of-wounds rate.

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The Uniformed Services Health Professions Revitalization Act of 1972, Public Law 92-426. The conscription of physicians, which began in 1950, ended in 1973 when the draft law was repealed. In anticipation of this, both a military medical school, the Uniformed Services University of the Health Sciences (USU), and a Health Professions Scholarship Program (HPSP) in civilian medical schools were established by Congress in 1972 to provide physicians for the Armed Forces. The Uniformed Services Health Professions Revitalization Act of 1972, Public Law 92-426, established the HPSP Program to be a flexible source for the *quantity* of physicians required by the Armed Forces; USU was established to provide a cadre of military medical officers who would serve as *career officers*, providing continuity and leadership for the Military Health System.

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USU's First Academic Program. The F. Edward Hébert School of Medicine was established by Congress as part of Public Law 92-426 in 1972, with its first class graduating in 1980. The early development of the University concentrated on USU's first academic program, the School of Medicine (SOM). **Anthony R. Curreri, M.D.,** was appointed as the University's first President in 1974. **Jay P. Sanford, M.D,** joined **Doctor Curreri**, at the USU President's request, and was later appointed as Dean, SOM, in May of 1975; he served as Dean through 1990.

The initial development of objectives for the SOM was accomplished through the combined efforts of the Board of Regents (BOR), the BOR Educational Affairs Committee, Doctors Curreri and Sanford, and special working groups. Activities used to develop these objectives included committee meetings, retreats, and consultation with a variety of experts from military medicine and civilian medical organizations and institutions. Individuals and groups consulted included: ***the Surgeons General*** of the Army, Navy and Air Force; ***Chiefs of the Medical Departments/Services*** of the Army, Navy, and Air Force; ***physicians from*** the Walter Reed Army Medical Center, the National Naval Medical Center at Bethesda, the Malcolm Grow Air Force Medical Center at Andrews Air Force Base, the Wilford Hall United States Air Force Medical Center, the United States Army Academy of Health Sciences, Sheppard Air Force Base Academy of Health Sciences, Brooke Army Medical Center, and the Armed Forces Institute of Pathology; ***the Service Secretaries*** from both the Air Force and Navy; the Association of American Medical Colleges (***AAMC***); the American Medical Association (***AMA***); the Liaison Committee on Medical Education (***LCME***); the Department of Health, Education, and Welfare (***HEW***); the National Institutes of Health (***NIH***); and, the following ***Universities***: George Washington, Georgetown and Howard.

Five Individuals Have Served as the Dean, SOM. The USU Board of Regents reviews the final candidates for the Dean of the SOM prior to selection by the USU President. To date, five individuals have held this position:

Jay P. Sanford, M.D., was appointed as the first Dean, SOM, in May of 1975 and served through 1990;

Harry C. Holloway, M.D., served as the **Deputy Dean** from 1990 through June of 1992;

Nancy E. Gary, M.D., was appointed as Dean on June 28, 1992 and served through mid-1995;

Val G. Hemming, M.D., served as Interim Dean from July 2, 1995 through May 3, 1996; and, following a national search, served as Dean from May 3, 1996 through May 19, 2002; and,

Larry W. Laughlin, M.D., Ph.D., was appointed as Dean on May 20, 2002 and continues to serve in that position.

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MISSION

The USUHS shall: 4.1. Educate and train competent medical personnel qualified to serve the needs of the Uniformed Services through providing the highest quality education programs in the health sciences; 4.2. Place high priority on educating and training personnel to meet the combat and peacetime medical needs of the Armed Forces; and, 4.3. Grant applicable advanced academic degrees; establish postdoctoral and postgraduate programs, and technological institutes; conduct medical readiness training and continuing education for members of the Uniformed Services in the health professions; and prepare individuals for careers in the health professions in the Uniformed Services.

- **DoD Directive 5105.45,** approved by the **Honorable John J. Hamre, Deputy Secretary of Defense**, dated March 9, 2000, page 2.

Consistent Mission Direction Focused on Readiness. USU has a thirty-three year history of guiding statements, mission direction, goals and tasking documents from the Congress, the Executive Office of the President, and the Department of Defense. From the words of the School of Medicine's "Founding Father," **Congressman F. Edward Hébert**, ... as he described how he first envisioned the University during the 1947 timeframe:

The mission of USUHS is to produce... dedicated young officers who... will be able to mobilize and deploy rapidly... to meet military and civilian crises... The University will provide opportunities for aspiring young military officers to attain academic recognition..." (the Life and Times of Congressman F. Edward Hébert, 1976, page 408)

to the mission statement of March 9, 2000, quoted above from the Department of Defense Directive for USU... the goals of the USU SOM have remained consistent. The USU SOM must provide: 1) a cadre of career-oriented physician officers who will provide leadership and continuity for the Military Health System (MHS) and the United States Public Health Service; 2) unique training in: combat medical care; trauma; mass casualties; the response to chemical, biological, radiological, nuclear, and explosive (CBRNE) contingencies; medical logistics; and, rapid deployment; 3) joint training in a multi-Service environment; and, 4) the opportunity for health care professionals throughout the MHS to attain academic recognition.

Modern military operations require physicians and surgeons to be deployed forward on the battlefield in order to return combat soldiers to duty as quickly as possible and minimize the loss of life and limb among the seriously wounded. This new kind of battlefield requires a new type of medical officer - a professional military medical officer who is trained to be an integral part of the forward combat team as it maneuvers over large distances to engage the enemy. USUHS is the only institution in the Nation that produces professional military

medical officers who are specifically trained to care for our men and women in uniform during combat operations.

- **The Honorable Lawrence C. Mohr, M.D., F.A.C.P., F.C.C.P., Member of the USU Board of Regents, Former White House Physician to the President,** Letter to USU, April 12, 2005.

Strategic Planning. A formal process of strategic planning was initiated, in 1991, to set priorities for the University. The process was conducted by an executive steering committee chaired by the USU President and included representation from the entire USU community. Mission and vision statements and guiding principles were completed in early 1992. Since that time, as part of an evolving process, specific goals, strategies, and objectives have been established for the University, to include metrics for achieving those goals.

The SOM community has been actively involved in the development of the USU Strategic Plan by: participating in the initial strategic planning training sessions during 1991; finalizing the objectives and metrics during 1999 and 2000; and, engaging in on-going strategic planning sessions held during April of 2001, December of 2002, and throughout 2003. This multi-year process has included institutional retreats, town meetings, departmental briefings, and printed and electronic updates as a means of communicating with the SOM faculty and staff. The SOM stands ready for continued University-wide strategic planning initiatives upon the arrival of the University's fifth President, Charles L. Rice, M.D.

To ensure that the SOM's future direction is consistent with that of its chain-of-command, the SOM strategic planning process is guided by the current strategies and goals of the MHS, which reflect the strategic planning policies and guidance established by the Office of the Assistant Secretary of Defense for Health Affairs. A formal process for identifying program needs and for submitting increased budget requests tied to the Strategic Plan has been established at USU. The individual SOM Departments must show a direct relationship with the University's overall Strategic Plan when submitting their requests for future budgets. In addition, a School of Medicine Strategic Plan has been written that is in compliance with the University's current strategies and goals; the SOM Strategic Plan has undergone review by the Basic Science Chairs Committee, the Clinical Science Chairs Committee, and the Faculty Senate.

Internal and External Departmental Review Process. A program was adopted by the School of Medicine in 1998, which mandated each department to conduct a *self-study* every five years or at the time of the appointment of a new chairperson. The self-study would be followed with a review of the self-study by a group of *peers* from outside of the University. From 1999 through 2004, self-studies and external reviews have been completed by the following Departments: Anesthesiology; Dermatology; Family Medicine; Military and Emergency Medicine; Obstetrics and Gynecology; Pediatrics; Pharmacology; Neurology; and, Radiology and Radiological Sciences. Other departmental reviews pending completion include: Anatomy, Physiology and Genetics; Medical History; Medicine; Pathology; and, Psychiatry. The results of these studies will be used to chart future courses for these departments in education, research, and community service.

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Mission Accomplishment...SOM Graduates Provide Continuity and Leadership for Military Medicine.

Retention of SOM Alumni and Their Unique Training Ensures Continuity for Lessons Learned in Military Medicine.

Ten Years of Congressional Testimony by the Surgeons General and the United States Congressional Record Validate that USU Alumni Ensure Continuity for the MHS.

As of April 2004, the USUHS SOM alumni averaged approximately 20 years of active duty service and represent 22.2 percent of the 11,901 physicians on active duty. The Center for Navy Analysis has reported that where the median length of non-obligated service for physician specialists is 2.9 years, the median length of non-obligated service for USUHS SOM alumni is 9 years, making USUHS the most cost-effective and recommended accession source for leadership positions and ensuring continuity in the military health system.

- **Daniel K. Inouye, United States Senator,** *Tribute to James A. Zimble, M.D.*, Congressional Record, July 6, 2004, page S7575.

The military unique curricula and programs of the Uniformed Services University, successfully grounded in a multi-Service environment, draw upon lessons learned during past and present-day combat and casualty care to produce career-oriented physicians, advanced practice nurses, and scientists with military unique expertise. The USUHS-unique training centered in preventive medicine and combat-related health care is essential to providing superior force health protection and improving the quality of life for our service members, retirees, and families.

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy,** Testimony before the House Armed Services Committee, Subcommittee on Total Force, March 27, 2003.

The extraordinary retention of these military officers (USUHS alumni) **ensures continuity for the MHS and the safeguarding of lessons learned during combat and casualty care... Furthermore, a significant number of USUHS graduates who have completed their residency training hold leadership or operational positions throughout the MHS...**

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy,** Testimony before the House Armed Services Committee, Subcommittee on Military Personnel, April 10, 2002.

I believe our opponents don't understand our business... they say medical care, and they envision peace time medical care as the only business we are in. In fact, we have two broad categories of business. One is called readiness. The other is called the peace time benefit.

USUHS, is the best investment in readiness medicine that we can make, (it) **provides a tremendous baseline for us. We train our uniformed services graduates in the benefit missions through residencies, but they** (USUHS graduates) **have a foundation in readiness that we cannot get anyplace else. We don't practice medicine in the military. We practice military medicine.**

- **Lieutenant General Paul K. Carlton, Jr., Surgeon General of the Air Force,** Testimony before the Senate Appropriations Committee, Subcommittee on Defense, February 28, 2001.

In Vietnam... I had no military training prior to coming in. It was a very challenging, difficult experience... when I got there I learned how to take care of Marines myself. I was alone. There was no place to med-evac patients, so through the night I had to keep casualties alive until we could move them during the daylight... The emotional experience of a young doctor who does not have the right kind of training in these kind of things has driven me to where I am today.

My whole life since that time has been dedicated to try to prepare people for combat, and USUHS has been able to train these young physicians to be far more ready than I was. They are superb in medicine. The training that USUHS provides is far more than just the medical training. What we have here is the ability to train Army, Navy and Air Force and Public Health Service physicians from day one to work together in a joint environment. They go and they jump out of airplanes with the Army, they go with us to the Marine Corps, they go with us aboard ships at sea, and they go to the air. They do all these things together... from day one... so they develop a joint mentality that has a value of which you cannot quantify the cost of. So, when the time came for me to select a doctor who was going to go on the Joint Task Force for Somalia, I chose a USUHS teacher, ...one who had been there, who spoke the language, who was able to do joint planning and to effectively bring the troops to Somalia. You cannot cost that out...the value of having people with this kind of training is really irreplaceable. There are many, many, many courses and experiences at USUHS that are just not duplicatable. It is a national resource. They come as leaders... they are dedicated to stay with us for a long time... We want experienced people to stay in the military... Now that we have USUHS, we cannot give that up.

- **Vice Admiral Donald F. Hagen, Surgeon General of the Navy,** Testimony before the Senate Armed Services Committee, March 2, 1994, pages 35-37.

USU SOM Alumni Represent 22.7 Percent of the Total Active Duty Physicians in the Army, Navy, and the Air Force. Since its first graduation in 1980, through April of 2005, USU has granted 3,587 medical degrees; 2,695 of those graduates remain on active duty in the Uniformed Services: Army - 1,035; Navy - 780; Air Force - 792; USPHS - 88.

The active duty physician force in the MHS currently totals approximately 11,495 physicians (Army - 4,140; Navy - 3,855; Air Force - 3,500). The 2,607 USU SOM Graduates on active duty in the Army, Navy, and Air Force represent 22.7 percent of those 11,495 physicians. The early founders had hoped that the USU graduates would equal at least 10 percent of the total physician force; the USUHS SOM has more than doubled that original milestone. USU has steadily proven to be an excellent source for career-minded physicians who are uniquely skilled in the practice of military medicine.

USU SOM Alumni Provide Outstanding Retention Rates. Congress had envisioned a retention rate close to 70 percent; USU SOM alumni have more than exceeded that milestone. For example, the retention rate for USU SOM graduates from the Classes of 1990 through 1999, is 88.8 percent. During a time of war, such retention rates are of significant importance to the MHS; ***career-oriented physician specialists are critical for continuity, leadership, medical readiness and quality care and USU SOM alumni are meeting that special requirement***. For example, the median length of ***non-obligated service for physician specialists in the Military Health System, not including USU graduates, is 2.9 years***; however, ***the median length of non-obligated service for USUHS graduates is 9 years***. These retention rates become even more significant in light of the recruitment and retention concerns currently reported by the Army Surgeon General:

> **Accession of Health Care Professionals into our Active force is becoming a more significant challenge. We are starting to see a downturn in our Health Professions Scholarship applicants for both the Medical and Dental Corps... Likewise I am concerned about the retention of health care professionals...** (*Currently, the DoD Health Professions Scholarship Program (HPSP) has less than one applicant per slot, while USU has over ten initial applicants per slot resulting in a strong selection pool during the final selection of matriculants*.)
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> - **Lieutenant General Kevin C. Kiley, Surgeon General of the Army,** Testimony before the Senate Committee on Appropriations, Subcommittee on Defense, May 10, 2005, page 6.

> **The AMA vigorously supports the continuance of USUHS because we believe it is vital to the continued strength, morale, and operational readiness of the military services... In a time of widely-held fears of a looming shortage of physicians and health care providers, this retention powerhouse** (USUHS) **is an increasingly valuable resource for the Military Health Services and the Nation.**
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> - **Michael D. Maves, M.D., MBA, Executive Vice President, CEO, The American Medical Association,** letter to the Office of the Secretary of Defense, May 6, 2005.

SOM Graduates Present Clinical Skills Required for MHS Residency Programs.

The Office of the Secretary of Defense, the Surgeons General, Deployed Alumni, and Accreditation Entities Provide On-Going Validation of the Outstanding Clinical Educational Experiences Provided at USU.

USUHS alumni possess, at graduation, the essential knowledge, skills, and attitudes required during Joint Service Deployments.

- **The Honorable Donald H. Rumsfeld, Secretary of Defense,** Narrative Statement and Citation to accompany the Distinguished Civilian Service Award, presented on August 2, 2004.

I want to extend my congratulations to you, the leadership and the faculty at the Uniformed Services University for your exemplary performance in receiving a ten-year accreditation with commendation from the Middle States Commission on Higher Education. This is a notable achievement, and it reflects a successful, long-term commitment to the highest levels of professional medical education for this Nation's Military Health System. The quality of your graduates continues to serve as a testament to the quality of the teaching that was endorsed by the Middle States Commission. You and your staff continue to make significant contributions to our Nation's military readiness and our national medical preparedness.

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense, Health Affairs,** Letter to the USU President, July 22, 2003.

I echo the assessment of USUHS provided by the Secretary of Defense on March 22, 2001: *The training USUHS students receive in combat and peacetime health care is essential to providing superior force health protection... USUHS is a unique national asset and a vital integrated part of the Military Health System*.

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy,** Testimony before the House Armed Services Committee, Subcommittee on Military Personnel, April 10, 2002.

The system in place for the documentation of the comparability of clinical educational experiences is an outstanding model for other institutions to emulate.

- **Liaison Committee on Medical Education (LCME)**, Letter to USU, dated April 6, 2002.

Senator, the three of us (Surgeons General) make up the Executive Board for the Uniformed Services University of the Health Sciences (USUHS), and we have a direct impact on the university... over the last eight years, as I have commanded a major medical center and also as the Surgeon General, I have learned of the quality of the product of USUHS and the focus that USUHS has on military medicine and the importance (of USUHS) **to the Surgeons General. I would be hard put to be without the graduates of USUHS.**

- **Vice Admiral Richard A. Nelson, Surgeon General of the Navy,** Testimony before the Senate Appropriations Committee, Subcommittee on Defense, February 28, 2001.

USUHS is a dramatic difference in depth and degree and experience and exposure and immersion in what we call military medicine, that is not available in the civilian community. My experience has been we have uniformly superior products in the (USUHS graduates)**. I happened to be stationed on an Army post before I came here, with a small clinic run by a young doctor. I saw the difference between his predecessor and himself, the USUHS graduate. He hit the ground running and turned the clinic around in just a few short weeks. It made a lasting impression on me.... From the clinics to the largest Air Force hospital in this country, Wilford Hall, USUHS graduates excel... A third of the USUHS graduates at Wilford Hall are in positions of high responsibility for their grade... I like what I see.**

- **Lieutenant General Alexander M. Sloan, Surgeon General of the Air Force,** Testimony before the Senate Armed Services Committee, March 2, 1994, page 37.

2004 AAMC Medical School Graduation Questionnaire Results Validate that USU Graduates Are Highly Satisfied with their Medical Education. Evidence of the high quality of training that SOM students have received comes from many sources. For example, each academic year, the Association of American Medical Colleges (AAMC), with the assistance of medical school administrators, conducts a survey of graduating seniors at medical schools throughout the United States. Students are asked to rate statements that cover their entire medical school experience. ***Included among the numerous topics surveyed are premedical preparation, pre-clinical education, clinical experiences, student services and the overall quality of the medical education received.*** The USU Office of Student Affairs reported that the ratings of the Year 2004 Medical School Graduation Questionnaire show a consistently strong, positive evaluation by USU students at a level well above the all-schools comparison. For example, 61.1 percent of the USU SOM seniors "strongly agreed" with the statement, *Overall, I am satisfied with my medical education*. Whereas, when averaging the replies from all responding medical schools in the United States, only 38.6 percent rated the statement as "Strongly Agree."

2004 Joint Service Graduate Medical Education Selection Board Results - 76 Percent Receive First Choice in Specialty. Traditionally, more than 75 percent of USU SOM graduates receive their first choice of specialty and location for their first year of residency training. In December of 2004, the Office of Student Affairs reported that the results of the 2004 Joint Service Graduate Medical Education (GME) Selection Board for the USUHS SOM Class of 2005 were favorable. The overall selection rate for FIRST CHOICE programs was 66 percent; 112 out of 168 USU students matched for their first choice both in

specialty and training site. Sixteen additional students received their first choice in specialty for a resulting total of 76 percent who received first choice in specialty. Feedback obtained from residency program directors indicates that SOM graduates are consistently recognized as well-prepared to complete graduate medical training.

USU SOM Students Pass the 2004 United States Medical Licensing Examination Step 2 at a Rate of 93 Percent. USU SOM students have consistently passed the United States Medical Licensing Examination (USMLE) Steps 1 and 2 at rates equal to, or higher than, the national average. In 1999, the National Board of Medical Examiners (NBME) began computer-based testing (CBT) for the USMLE Step 1 and 2 Examinations. The Step Examinations are administered at Prometric Testing Centers throughout the calendar year. Most of the USU fourth-year students (SOM Class of 2005) completed the Step 2 CBT between July and September of 2004. The overall performance for the Class of 2005 was strong; the average score for the class was 213 and the pass rate was 93 percent.

Operational Assignments, Leadership Positions, and Unique Understanding of Military Medicine Are Substantiated.

Military Associations, the Surgeons General, the United States Congress, and the Office of the Secretary of Defense Confirm the Critical Requirement for USU SOM Alumni in the MHS.

The American Legion urges the Department of Defense to retain and expand the Uniformed Services University of the Health Sciences (USUHS) as a reliable and valuable source of uniformed physicians, advanced practice nurses and scientists dedicated to careers of service in the Army, Navy, Air Force and the United States Public Health Service... The American Legion, in its adopted mandates, traditionally does not take positions with regard to specific bases and installations. However, the Uniformed Services University of the Health Sciences, in our view, is uniquely critical to long-term military medical readiness and a true national asset.

- **Thomas P. Cadmus, National Commander, The American Legion,** Letter to the Secretary of Defense, April 8, 2005.

For many years, The Military Coalition has committed its support for the Uniformed Services University of the Health Sciences (USUHS)... The Secretary of Defense refers to the USUHS graduates as the "backbone" of the Military Health System (MHS) and he has officially recognized that USUHS academic centers and research programs have established international credibility for: military unique medical expertise; communication and assessment of military medical humanitarian assistance training; addressing traumatic stress in uniformed and civilian health care communities; and, developing radiological countermeasures and unique training for the response to radiological emergencies... As our Armed Forces continue to be deployed into combat zones, USUHS graduates ensure that these superb uniformed personnel are provided with quality care from the initial preventive measures taken to protect their health, to the moment of injury, through their release from hospitalized treatment.

- **The Military Coalition, Signed by 35 Military Associations,** Letter to the Office of the Secretary of Defense, April 13, 2005.

Thank you for the 2002 Edition of the USU Journal. Your record of accomplishments is truly impressive. Never has the need been greater to provide top quality professionals for our Military Health System. The men and women serving in Iraq and in other challenging assignments around the world are in good hands... What you do is so important to the future of our nation.

- **Kenneth A. Goss, Colonel, USAF (Retired), Director, Government Relations, The Air Force Association,** Letter to USU, November 3, 2003.

These USUHS alumni serve in critical roles that are vital to the readiness mission of the Military Health System (MHS). The extraordinary retention of these military officers ensures continuity for the MHS and the safeguarding of lessons learned during combat and casualty care. Currently, USUHS School of Medicine alumni represent over twenty-one percent of the total physicians on active duty in the military services. Furthermore, a significant number of USUHS graduates who have completed their residency training hold leadership or operational positions throughout the MHS. (*As of April 2005, the USU SOM alumni represent 22.7 percent of the total physicians on active duty in the Armed Forces*.)

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy**, Testimony before the House Armed Services Committee, Subcommittee on Military Personnel, April 10, 2002.

Our Uniformed Services University of the Health Sciences has robust and long-standing educational programs in the medical aspects of biological and chemical terrorism developed for our military medical and graduate students. The University is now actively involved in adapting these programs to the civilian medical education community in both traditional and interactive web-based formats. The University works closely with other federal agencies, the private sector, and the American Association of Medical Colleges and the American Medical Association to accomplish these important and timely educational goals.

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs**, Testimony before the House Committee on Government Reform, Subcommittee on National Security, Veterans' Affairs, and International Relations, November 7, 2001.

As for recruiting, we have some of the best programs in the world. The young men and women who are coming out of the Uniformed Services University of the Health Sciences are absolutely superb!

- **Lieutenant General James B. Peake, Surgeon General of the Army**, Military Medical Technology, Volume 4, Issue 6, 2000, page 18.

Do I value USUHS?... I value it a great deal and (consider that) **it is a major asset to this country. I do value the output. I can tell you that in the Army we have a deficit of training in the type of individuals who can go into combat with a battalion... and I do get complaints from line officers that we very frequently have physicians in there who are not ready for that. That is never the case when a USUHS graduate fills that bill.**

- **Lieutenant General Alcide M. LaNoue, Surgeon General of the Army,** Testimony before the Senate Armed Services Committee, March 2, 1994, page 35.

USU SOM Alumni Hold Significant Leadership and Operational Positions Throughout the MHS.

Support to Military Operations: **The need for USUHS as a guaranteed and proven source for the right physician leaders will be even more important as DoD fights future wars. Because of their selection and subsequent training, USUHS graduates seek assignment to operational units in large numbers (51 % of medical officers assigned to Army Special Forces are USUHS graduates). These core competencies have value not only for our military operational mission but also in DoD's support for Homeland Security. Refereed publications report that USUHS is the premier source of training for readiness, contingencies, community and public health, and other mission imperatives.**

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs**, Briefing on USU before OSD Leadership, April 18, 2005.

As our Armed Forces are being deployed into combat zones, USUHS graduates ensure that these superb uniformed personnel are provided with quality care... For example, fifty-one percent of physicians with the Army Special Operations Forces are USUHS SOM alumni. and one out of every three physicians with the Special Operations Forces across the Army, Navy and Air Force are USUHS SOM graduates.

- **United States Senators Paul S. Sarbanes and Barbara A. Mikulski; Congressmen Chris Van Hollen, Benjamin L. Cardin, Elijah E. Cummings, Steny H. Hoyer, C.A. Dutch Ruppersberger, and Albert R. Wynn,** Letter to the Secretary of Defense, April 1, 2005.

Physicians in the Special Operations Forces community are at times required to operate well forward in austere environments with very little ancillary support. They often encounter problems without a *book* solution. The USUHS curriculum prepares you for this.

- **Major Robert Mabry, MC, USA, USU SOM Class of 1999, Unit Surgeon, Army Special Operations Forces,** Afghanistan, Correspondence with USU, April 13, 2005.

Brigadier General Bill Fox, MC, USA, USU SOM Class of 1981, was selected as Commanding General, Brooke Army Medical Center, Great Plains Regional Medical Command, Fort Sam Houston, Texas.

- USU Medicine, *Class Notes*, Fall 2003, page 28.

Brigadier General Bill Germann, USAF, MC, USU SOM Class of 1982, was selected to command the 89th Medical Group (Malcolm Grow United States Medical Center), Andrews Air Force Base, Maryland.

- USU Medicine, *Class Notes*, Spring 2003, page 31.

Colonel Thomas Travis, USAF, MC, USU SOM Class of 1986, was promoted to Brigadier General during a ceremony held on September 3, 2004. Colonel Travis is the Commander of the 311th Human Systems Wing, Brooks City-Base (formerly Brooks AFB), Texas.

- **Sharon Willis, USU Alumni Affairs**, USU Medicine, *USU Alumnus Earns First Star*, Summer 2004 Edition, page 5.

Colonel Michael Spatz, USAF, MC, USU SOM Class of 1983, Deputy Assistant Surgeon General for Medical Force Development, Medical Corps Director, and Chief, Air Force Medical Service Education and Training, Office of the Air Force Surgeon General, oversees all force development for the medical corps, to include medical student training and scholarships, graduate medical education, promotions, assignments, special pays, recruiting and retention, as well as all education and training for the Air Force Medical Service.

- **Sharon Willis, USU Alumni Affairs**, USU Medicine, *Class Notes*, Summer 2004 Edition, page 32.

Colonel Bryan Funke, USAF, MC, USU SOM Class of 1985, transferred from his position as **Commander of the 14th Medical Group, Columbus Air Force Base, Mississippi,** to assume responsibilities as **Commander of the 25th Medical Group, Misawa Air Base, Japan. He is currently serving as the Central Air Forces Forward Surgeon in the Middle East.**

- **Sharon Willis, USU Alumni Affairs**, USU Medicine, *Class Notes*, Summer 2004 Edition, page 32.

CAPT David Wade, MC, USN, USU SOM Class of 1981, is the Force Medical Officer, Commander-in-Chief, United States Navy, Europe.

COL Rhonda Cornum, MC, USA, USU SOM Class of 1986, is the Commander, Landstuhl Regional Medical Center, Germany.

- **Sharon Willis, USU Alumni Affairs**, E-Mail, *Alumni in Significant Leadership Positions*, November 7, 2003, 3:05 PM.

The highly dedicated USU graduates are earning promotions at above average rates; they have become well-respected in their medical specialties, and hold significant positions of leadership in areas of military medicine ranging from special operations and hospitals, to the White House and the newly established Department of Homeland Security, to deployments to Afghanistan and Iraq, and to assignments aboard ships at sea and with the Blue Angels. SOM alumni are engaged in patient care or research in military hospitals and clinics around the world, administering to active duty members, retirees, and their family members. These military physicians and the thousands of other health professionals who have taken advantage of the numerous graduate and continuing education programs provided by the SOM, are living testimony to USU's mission as the Nation's Federal Health Sciences University.

GAO Review Documents USU SOM Alumni Meet the Special Needs of the MHS. Following an inclusive review in 1995, the General Accounting Office (GAO) confirmed that **"43 out of 44 commanders of major military medical units perceived that physicians from the University have a greater overall understanding of the military, greater commitment to the military, better preparation for operational assignments, and better preparation for leadership roles."** The GAO reviewers also pointed out that they **"perceive that University graduates have a better appreciation of and greater satisfaction with the physician's role within the military"** than other accession sources (General Accounting Office Report, *Military Physicians - DoD's Medical School and Scholarship Program*, September 29, 1995, page 43). Congressional testimony by the Surgeons General and Military and Civilian Associations, and tributes throughout the Congressional Record reflect that these significant findings have been validated over the past eleven years.

USU SOM Alumni Hold a Significant Percentage of Leadership and Operational Positions in the MHS. A review completed in January of 1998, documented that of the approximately 1,431 USU graduates on active duty who were eligible to hold leadership positions, and were not in a post graduate educational status, 292 were serving as chairs, chiefs or heads of departments, directors of services, or program directors in military hospitals, clinics or centers. An additional 60 USU alumni were serving in operational assignments for the three military services. These 352 USU physician alumni were holding significant leadership and/or operational positions throughout the Military Health System (MHS). Another review conducted in February of 1999, documented that of the first six classes of USU graduates, from 1980 through 1985, 408 alumni remain on active duty; 170 of whom (approximately 42 percent) hold senior operational or leadership positions. In April of 2003, a preliminary review reflected that over 50 of the most significant Command Positions in the MHS are held by USU graduates. The USU Office of Alumni Affairs also conducted a preliminary review during April of 2005 and reported that 51 percent of physicians with the Army Special Operations Forces are USU SOM alumni; and, one out of every three physicians assigned with the Special Operations Forces across the Army, Navy, and Air Force is a USU SOM graduate.

Special Operations Forces are dedicated, professional, fit and highly trained individuals. A high degree of professionalism and military bearing are the standard. USUHS provides (the) **SOF with military physicians who fit in and excel in this community.**

- **Major Robert Mabry, MC, USA, USU SOM Class of 1999, Unit Surgeon, Army Special Operations Forces,** Afghanistan, Correspondence with USU, April 13, 2005.

Reliability and Sustainability of Accession Sources: **Of current accession programs, USUHS is the most reliable and cost-effective source for filling senior leader requirements. USUHS currently provides 23 % of all active duty physicians. Removing USUHS as an accession source introduces significant risk of physician shortfalls. Accessions from the Health Professions Scholarship Program (HPSP) alone are an unproven source for proper design and mix of the medical force structure. Congress and DoD created the current integrated and complementary triad of physician accession sources to provide the numbers, required specialties and experience (rank) required to meet MHS missions. The HPSP provides the bulk of the required physicians of lower rank and experience, only 5 % of which remain on active duty beyond their initial obligations. USUHS provides a stable cadre of career military physicians and other healthcare professionals in all specialties.**

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs**, Briefing on USU before OSD Leadership, April 18, 2005.

It is the job of a teacher to keep bringing us back to certain basic principles. It is the moral obligation of the teacher to know his or her students, to recognize their individual needs, and to provide information, guidance, and encouragement during the learning process. The future of the medical departments appears bright when considering the quality of applicants seeking admission to the School of Medicine at USUHS. As a group, they have impressive credentials. Their application essays reflect a bright, highly motivated, and service-oriented cadre.

- **Rear Admiral Donald L. Sturtz, MC, USN, (Retired), Professor, Department of Surgery, USU School of Medicine**, Military Medicine, *Commitment*, Volume 166, September 2001, pages 741-742.

High ethical standards, the candidate's own `internal moral compass,' compassion, honesty, and integrity should be emphasized in the selection process for candidates to become the nation's physicians... Selection should employ MCAT scores and GPAs not as predictors of success in medical school, but as threshold measures to indicate only that applicants possess the intellectual endowment and scholastic aptitude needed to meet the academic rigors. Once candidates have satisfied those threshold requirements, we should give no further weight to academic credentials but make selections on the basis of character traits and aptitude for serving others.

- **Jordon Cohen, M.D., President, Association of American Medical Colleges (AAMC)**, Opening Remarks, the 108th Annual Meeting of the AAMC, on November 6, 1997.

The USU SOM Selection Process Withstands the Test of Time. The USU SOM selection process has been identified as one of the major factors in the success of the overall retention rates of the USU alumni. All candidates are carefully screened during the interview process to determine the following: 1) already recognized sensitivity for national, public, and/or community service, which clearly has the potential for enhancement in Federal service; 2) the presence of natural and adaptable leadership skills already documented in a variety of organizations and circumstances; 3) an enthusiasm for supportive care-giving directed at individuals and groups, forming the basis for evolvement as a physician in the broad areas of medicine, and military medicine in particular; and, 4) a documented record of academic success, which extends beyond the boundaries of any standard curriculum, as demonstrated through individual creativity, service, and/or research. A Matriculating Student Survey conducted by the Association of American Medical Colleges (AAMC) showed that compared to the national group of matriculants, USU SOM candidates were more likely to select medicine as a career because of the opportunity to serve the community and to lead, and less likely to seek a medical career for purposes of prestige or high income.

The SOM Committee on Admissions, faculty and student interviewers, and the SOM Office of Admissions work together to manage and implement the SOM Selection Process. The Committee on Admissions is comprised of men, women, active duty, civilian, clinical science, basic science, minority, and community representation for a total of 26 individuals. The applicant review process operates at subcommittee and full committee levels, with the initial review focusing on Medical College Admission Test (MCAT) scores and grade point averages (GPAs). The secondary review process is designed to enhance the opportunity for inviting applicants to interview. Candidates with academic records that would ordinarily preclude regular review at the subcommittee level and those not initially invited for interview are reviewed by the Dean of Admissions. This allows the identification of candidates who may have been overlooked and supports the SOM effort to recruit active duty military applicants, disadvantaged individuals and underrepresented minorities. Folders of all interviewed applicants are reviewed by three separate subcommittee members and are presented for full committee review if ranked above the minimum threshold.

The *interview day* is consistently reported as a positive experience by applicants; during the interview process, the applicants take part in various activities, to include: organized briefings; two formal interviews; lunch; a tour of the campus with students; and, informal visits with the Associate Dean for Student Affairs, the Assistant Dean for Admissions and Academic Records, the Vice President for Recruitment and Diversity, the Assistant Dean for Clinical Sciences, faculty members and the SOM Commandant. Applicants are also given the opportunity to stay overnight with a student host. The selection process has continuously brought to the SOM a group of students who are academically qualified and well-motivated to practice medicine. In the history of the medical school, only two percent of the student body has had to be disenrolled for academic reasons; this is about one-third of the national average. The excellent percentage of students graduating (almost 98 percent) is due to: 1) a good selection process; 2) a solid educational program; and, 3) genuine concern for those students who require academic or personal assistance during their time at USU.

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ACCREDITATION

Strengths:

- **The oversight and coordination of scattered clerkship sites produce quality and comparability in a model that other medical schools should follow.**
- **Both faculty and the dean value their roles as mentors and educators of students.**
- **The students are enthusiastic about the University and for their education.**

Commendation:

- **The University is commended for its success in educating students to become physicians in the military thus achieving the vision of being "the pre-eminent university for military medicine."**

  - **Evaluation Team of the Middle States Commission on Higher Education,** Report to the Faculty, Administration, Trustees, Students of USUHS, USU received a 10-year accreditation with commendation, April 2, 2003.

Early Coordination with Accrediting Entities. The developmental process for establishing the initial objectives of the SOM were accomplished through the combined efforts of the founding USU President, **Anthony R. Curreri, M.D.**, the Board of Regents (BOR), the Dean, **Jay P. Sanford, M.D.**, and, special working groups. Activities used to develop these objectives included committee meetings, retreats, and consultation with a variety of experts from military medicine and civilian medical organizations and institutions. Significant among those coordinating entities were representatives from both the Middle States Commission on Higher Education (provides accreditation at the University level, to include the SOM) and the Liaison Committee on Medical Education (LCME), which provides accreditation specifically for the SOM.

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SOM Program Accreditation by the Liaison Committee on Medical Education.

Background. The LCME accreditation process is designed to certify that a medical program meets prescribed standards; and, by awarding accreditation, the LCME indicates confidence in the quality of the medical school program. The accreditation process also fosters institutional and program improvement. The SOM received provisional accreditation from the LCME, a joint activity of the Association of American Colleges (AAMC) and the Council on Medical Education of the American Medical Association (AMA) in 1976. The SOM was fully accredited by the LCME in 1979, and has continuously maintained that status.

The SOM prepared a Self-Study during 1992 and was visited by an LCME survey team during January 11-14, 1993. On April 7, 1993, the LCME voted to continue full accreditation for seven years. The Dean was asked to submit a report to the LCME by January 1, 1995, addressing: 1) progress in

curriculum reform, including decompression in the first two years; 2) the empowerment and role of the curriculum committee to review, evaluate, design, and manage the curriculum; 3) the status of filling chairs of academic departments, with special reference to the availability of space and financial resources to do so and to the energizing of education and research; and, 4) the appropriateness of enrollment size and the adequacy of clinical resources. Following the LCME request, an ongoing curriculum renewal process was initiated in June of 1993. In November of 1993, the Dean's Policy Memorandum regarding the structure and function of the curriculum committee was updated to assign responsibility to the curriculum committee in accordance with the LCME's guidance as described in Functions and Structure of a Medical School. Search committees were appointed to fill the open department chair positions. And, plans were initiated to develop third-year clerkship rotations at two additional sites. A report, submitted in December of 1994, detailed the status of progress in the four areas identified by the 1993 LCME response. The LCME accepted the report in February of 1995; and, it requested an additional report by September 1, 1996, to address the following: 1) any changes in class size stemming from the downsizing of the Uniformed Services; 2) the status of continued Federal support; 3) further progress in curricular management, evaluation, and reform; and, 4) the system and results of monitoring the equivalency of educational quality and the evaluation of students across sites of clinical education. The response, dated August 16, 1996, indicated that the class size had not been affected by the downsizing of the Uniformed Services and that Federal funding was sufficient to support the University's programs. Also, during the 1996-97 Academic Year, an additional ten percent reduction in contact hours for first and second-year students was implemented, resulting in an additional afternoon per week of student study time. In September of 1996, the LCME accepted that report; and, no further information was requested prior to the full accreditation survey scheduled for the 1999-2000 Academic Year.

The LCME Grants Continued Accreditation through 2007. Following accreditation by the LCME in April of 1993, the LCME scheduled its next review of the SOM Program for reaccreditation in November of 1999. As a precursor to that review, the Associate Dean for Medical Education coordinated an institutional Self-Study. Self-Study Committees were established during 1998, assigned topic areas, and charged to review and analyze portions of the Medical Education Database as well as other information considered relevant to their topic areas. Reports were then submitted to the Steering Committee on February 1, 1999; all reports were reviewed by both the Steering Committee and a larger LCME Task Force. All data, Self-Study reports, and the Executive Summary were submitted to the Dean during the Summer of 1999. Following the Dean's review, those materials were submitted for review to the LCME and the Survey Team Members some months prior to the Survey Team Visit. The Site Visit took place on November 14-18, 1999. Exit briefings and follow-up correspondence from the LCME suggested a successful visit and continued accreditation. Official notice from the LCME was provided on April 13, 2000: **"The School of Medicine received continued full accreditation of the educational program leading to the MD degree for a seven-year term. The next full survey will take place during the 2006-2007 academic year"** (Letter from the LCME to the USU President, dated April 13, 2000).

Excerpts from the Summary of the LCME Accreditation Report as Provided in the USU Board of Regents 2000 Report to the Secretary of Defense.

There is ample evidence that a large number of faculty and staff members had taken the self-study seriously and participated fully in the preparation of the report, which was thorough and showed meticulous attention to detail.

In reaching its decision to continue full accreditation of the medical school, the LCME identified numerous institutional strengths:

1. The School of Medicine is very successful in meeting its mission in graduating physicians who are well prepared and committed to military medicine;

2. The Dean holds a deep commitment to the values and success of the School of Medicine. He is a strong, capable leader who has been critically important in helping the school fulfill its mission;

3. The clinical curriculum is delivered in excellent military medical facilities, both locally and nationally;

4. The Department of Internal Medicine is to be commended for its success in creating a uniformly excellent clinical clerkship, comparable in quality across multiple educational sites;

5. The students are bright, academically talented, and uniformly dedicated to careers in military public service. They are consistently positive in their views toward their school and its faculty;

6. The support services provided by the Student Affairs Office are exceptional and appreciated by the students;

7. The faculty is available, interested and committed to student instruction and supervision. They work in a collegial fashion on behalf of the School of Medicine and the students; and,

8. The library, computer services, and the new simulation center are state-of-the-art, meeting the educational demands of the students for the future.

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2002 Progress Report Receives Commendations from the LCME.

At its meeting on April 3-4, 2002, the Liaison Committee on Medical Education (LCME) reviewed and accepted with appreciation your progress report on the documentation of the comparability of clinical educational experiences across clerkship sites.... The system in place for documentation of the comparability of clinical educational experiences is an outstanding model for other institutions to emulate. Your next full accreditation survey is currently scheduled for the 2006-2007 Academic Year.

- **The Liaison Committee on Medical Education,** Letter to the Dean, School of Medicine, dated April 6, 2002.

In its correspondence dated April 13, 2000, the LCME requested that the Dean of the SOM submit a progress report by March 1, 2002, addressing the following items: documentation of the comparability of clinical experiences across clerkship sites; planning and documentation of resources to support ongoing curriculum design and oversight and enhanced centralized faculty control and management of the curriculum;

and, planning for facility improvements for research and education, including progress in addressing the limitations in research laboratory space, office space, and adequate space for small group instruction in the first two years.

The Dean of the SOM began initiatives to enable a timely response to the LCME's request for a progress report. In late April of 2000, the Dean met with the Curriculum Committee and charged its members to develop a plan to further enhance the process of curriculum oversight and management. This new plan was implemented at the beginning of the 2000-2001 Academic Year. The Associate Dean for Clinical Affairs was directed to develop a plan for documenting comparability of clinical experiences across clerkship sites. This task was accomplished in conjunction with the SOM clinical department chairs and hospital-based faculty. The SOM Space Review Committee developed and implemented processes for the review and assessment of space utilization. Baseline data was reviewed and recommendations were provided to improve assignment and utilization of existing space. This process, together with the additional use of 20,000 square feet of laboratory space on the grounds of the National Naval Medical Center and the addition of an approved construction project (41,055 square feet) in the Medical Military Construction Program for Fiscal Year 2006, demonstrated the SOM's progress in addressing space utilization concerns. On February 25, 2002, the USU SOM provided its progress report to the LCME. On April 6, 2002, the Dean, SOM, received notice from the LCME that it had "reviewed and accepted with appreciation the progress report on documentation of the comparability of clinical educational experiences across clerkship sites, planning and documentation of resources to support curriculum design oversight, enhanced centralized faculty control, management of the curriculum, and planning for facility improvements for research and education." The LCME informed USU that the next full accreditation survey is scheduled for the 2006-2007 Academic Year.

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SOM Dean Implements a Review and Revision of Educational Objectives for Compliance with LCME Guidance. During the past year, the Dean of the SOM appointed a subcommittee of the Executive Curriculum Committee (ECC) to review and revise the 1998 educational objectives and ensure compliance with the LCME's *Functions and Structure of a Medical School*, published in September of 2003. A draft report was to be submitted to the ECC for comment and then distributed to the faculty for their review and comment; then, the final document was to be submitted to the Dean for approval/disapproval. **William Haffner, M.D., CAPT, USPHS (ret.), Professor and Former Chair of Obstetrics and Gynecology,** was selected to chair the subcommittee.

The revised LCME Standards for Accreditation require that ***educational objectives state what students are expected to learn, not what is to be taught; that student achievement... must be documented by specific and measurable outcomes; and that objectives and associated outcomes must address the extent to which students have progressed in developing the competencies that the profession and public expect of a physician***. The LCME also requires that ***objectives for clinical education must include quantified criteria for the types of patients (real or simulated), the level of student responsibility, and the appropriate clinical settings needed for the objectives to be met; and, that the objectives of the educational program must be made known to all medical students and to the faculty, residents, and others with direct responsibilities for medical student education***.

The subcommittee met with the ECC, the Basic Science Chairs, and the Clinical Chairs to define the scope of the revision process. It was determined that a major curriculum redesign was not required; but, that the existing 1998 educational objectives should be brought into compliance with the LCME guidelines,

particularly regarding measurable outcomes. During 2004, the subcommittee reviewed national measures of general competencies, including the AAMC's Medical Schools Objectives Project (MSOP) and the Accrediting Commission for Graduate Medical Education (ACGME) - ABMS Outcomes Project. In addition, the subcommittee reviewed the objectives from other schools of medicine. It was decided that the ACGME General Competencies reflected those measures of competencies that are most widely recognized among educators of medical students and residents in the United States.

The subcommittee re-ordered the ACGME General Competencies to meet the USU SOM educational mission by emphasizing that medical and population health knowledge is the first objective, followed by interpersonal and communications skills, patient care, practice-based learning and improvement, professionalism and officership, and system-based practice. To best fit the mission of the University and the SOM, population health was added to the medial knowledge objective and officership was added to the professionalism objective. The current 1998 objectives were then sorted so as to best fit within the most appropriate of the six general competencies and reworded into more measurable terms. The draft revision was circulated electronically to all faculty and medical students and input from all who provided comments was incorporated into the final document following subcommittee review.

The subcommittee also determined that a *Statement of Purpose*, or preamble to the objectives document, would assist in better framing the context for the students and faculty. The Statement of Purpose delineates that the USU SOM: selects applicants who demonstrate great potential as future physicians and a strong commitment to military medicine and public health; provides a student-centered educational program; acquaints students with the various career options through the provision of special experiences throughout their training; provides rigorous, comprehensive curricula in preventive medicine/public health and military/operational medicine; and, maximizes the students' preparedness to meet the general competencies of the ABMS and ACGME, pass the USMLE as required for graduation and licensure, and assure integration of the principles of officership as well as the knowledge, skills, and professionalism expected of uniformed medical officers.

In the priority area of medical and population health knowledge, the eight objectives state that SOM graduates must demonstrate knowledge about established and evolving biomedical, clinical, epidemiological, and social-behavioral health sciences and the application of this knowledge to patient care and population health. ***The three objectives covering interpersonal and communications skills*** state that graduates must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and professional associates. ***Patient care objectives (eleven)*** describe that graduates, while still under appropriate levels of supervision, must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. ***Practice-based learning and improvement objectives (seven)*** state that graduates must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices. ***The six professionalism and officership objectives*** state that graduates must demonstrate commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. Finally, ***the seven system-based practice objectives*** state that graduates must demonstrate awareness of, and responsiveness to, the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value.

The subcommittee submitted the draft revisions of the educational objectives to the Dean of the SOM, as reported to the Faculty Senate in July of 2005. Following his approval, the Dean will next task the ECC to work with the department chairs and course/clerkship directors to develop outcome measures for implementation, as appropriate, for each department/discipline covering each of the 42 objectives. The

resulting outcome measures will be analyzed by the ECC, which will provide guidance to the course/ clerkship directors reference any modifications that are required to meet the objectives or, alternatively, to reassess the objectives themselves through an on-going, continuous improvement process.

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Additional Accrediting Entities Provide Quality Assurance. In addition to the University's accreditation by the Middle States Commission on Higher Education and the SOM's accreditation by the LCME, the following professional organizations continue to authorize accreditation for the various programs and activities of the SOM: 1) the Accreditation Council for Continuing Medical Education; 2) the Council on Education for Public Health (CEPH); 3) the American Psychological Association (APA) Committee on Accreditation; and, 4) the Accreditation Board for Engineering and Technology (ABET). Also, SOM Steering Committees are actively involved with the accreditation process for two additional areas of responsibility reviewed by: 5) the American Association for the Accreditation of Laboratory Animal Care; and, 6) the Nuclear Regulatory Commission.

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MILITARY UNIQUE CURRICULUM

Introduction. **USU represents a total military medical educational environment and acculturation process. USU has a mission unlike any other of America's 125 medical schools. Medical education at USU combines clinical mastery with intensive, state-of-the-art simulation, operational and field training to produce the best prepared and most effective U.S. military medical forces in our history. USU graduates are equally prepared for the operating room or the situation room. USU's mandate to train uniformed medical personnel to serve the U.S. Armed Forces and U.S. Public Health Service worldwide and under all climatic and geographic conditions necessitated that a military unique curriculum be added to the standard medical school curriculum. The USU School of Medicine (SOM) provides 20 more weeks of education than the typical medical school. During this time students spend over 800 hours in military and medical readiness training or up to 15 times the hours that other medical corps officers receive. Military medicine requires a solid background in tropical medicine and hygiene, parasitology, the use of epidemiologic methods and preventive medicine. The SOM provides its medical students with approximately 130 hours of study in these areas, compared to about 13 hours found in the typical civilian medical school curriculum.**

Additional knowledge in such areas as military medical intelligence, psychologic stresses of combat and trauma, the medical effects of nuclear, chemical, and biological weapons, and the medical effects of extreme environments - aerospace, undersea, tropical or desert conditions - is essential to a uniformed health care provider's ability to properly support his/her military commander's responsibility for troop fitness. The ability to provide disease prevention and health promotion under austere conditions is also critical. USU provides the Military Health System (MHS) with career-oriented personnel who possess the knowledge, skills, and attitudes essential for effective deployment during Joint Service Operations in fulfillment of the USU motto: "Learning to Care for Those in Harm's Way."

- **USU Board of Regents,** 2005 Report to the Secretary of Defense, *Introduction*, pages 1-2.

In my last 6 months, here in Afghanistan, I have diagnosed and/or treated malaria, typhoid fever, polio, retinoblastoma, leptospirosis, leishmaniasis, rickets, kwashiorkor, beri-beri, extra pulmonary and pulmonary tuberculosis, a variety of intestinal parasites, frostbite, mumps and rheumatic fever. My education at USUHS prepared me to recognize and treat these diseases, many I had never seen in the United States, that are common in areas where we currently conduct military operations.

- **Major Robert Mabry, MC, USA, USU SOM Class of 1999, Unit Surgeon, Army Special Operations Forces,** Afghanistan, Correspondence with USU, April 13, 2005.

In terms of contributions provided during the conflict (the war with Iraq)**, upwards of 100 of our physician graduates served with distinction in the war. Their efforts ranged from providing frontline trauma surgery for coalition forces to caring for sick and injured Iraqi**

citizens and enemy prisoners of war... Additional physician and nurse alumni provided rear echelon support throughout the medical evacuation system, including the critical care air transport systems and Landstuhl Regional Medical Center as well as stateside Army and Navy hospitals. Some of their efforts have been recounted in national and local newspapers and by radio and television stations, including the Washington Post, New York Times, Baltimore Sun, Wall Street Journal, Stars & Stripes, Los Angeles Times, Charlotte Observer, USA Today, Miami Herald, National Public Radio, and ABC-TV.

Most of the forward surgical teams and shock-trauma platoons deployed to the theater of operations received just-in-time battlefield skills sustainment training programs, each run by a USU alumnus.

Our students receive an extra measure of combat casualty care training in their four years at the University, especially through our Department of Military and Emergency Medicine, the only such department in the Nation... This training was critical to the success of U.S. operations.

- **Everett Alvarez, Jr., J.D., Chair, USU Board of Regents,** 2003 Annual Report to the Secretary of Defense, *Executive Summary*, June 30, 2003.

The USUHS-unique training centered in preventive medicine and combat-related health care is essential to providing superior force health protection and improving the quality of life for our service members, retirees, and families. USUHS also provides a significant national service through its continuing medical education courses for military physicians in combat casualty care, tropical medicine, combat stress, disaster medicine, and the medical response to weapons of mass destruction (WMD).

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy,** Testimony before the Senate Appropriations Committee, Defense Subcommittee on Defense Health, April 30, 2003.

Recent tragic events and the current Global War on Terrorism clearly show the benefits of preparedness and training. It is gratifying to know USUHS is leading the way in preparing military health care professionals to meet current and future challenges. Please accept my appreciation and pass on a hearty "Well Done!" to your colleagues and the students for their dedicated efforts in support of our men and women in uniform.

- **General Richard B. Myers, Chairman of the Joint Chiefs of Staff,** Letter to USUHS, March 29, 2002.

General Overview. The School of Medicine is a fully accredited medical institution, which provides a year-round, four-year curriculum. This curriculum is 174 weeks in length, approximately 20 weeks longer than the average curriculum of medical schools in the United States. This expanded curriculum focuses on epidemiology, health promotion, disease prevention, tropical medicine, leadership, officership,

the management of combat trauma, and combat casualty field exercises. Woven throughout the students' entire course of study, these and other subjects focus directly on the unique requirements of career-oriented physician officers. The USU SOM military unique training includes **"approximately between 784 and 889 hours of initial military education and medical readiness training compared to that provided to the Health Professions Scholarship graduates whose training ranges from 50 to 132 hours, depending on the Service"** (General Accounting Office Report, *Military Physicians - DoD's Medical School and Scholarship Program*, September 29, 1995, page 41).

USU Represents a Total Military Medical Educational Environment and Acculturation Process.

Throughout my 28 years of service in our U.S. Army, I have applied and refined the profession of military physician... When I entered USUHS, I understood that I would commit my career to the study of the art and science of applying my medical education, training and skills to the military and the application of my medical skills toward providing health care on the battlefield... In three wars and two peacekeeping operations, I have numerous stories where my training and joint medical understanding and contacts were pivotal to executing health care operations on the ground. But equally important has been my understanding and application of joint medical operations and the ability to call upon my medical school (USUHS) **classmates within their operational medical roles to solve problems. I can recount the many ways and means in which I drew upon the education and experiences I received** (at USUHS), **but it is safe to say that these all were derived from a fundamental base of education and culture development toward placing enormous value on a profession that required my understanding and application of officership as well as my understanding and mastery of my medical and surgical skills.**

- **Brigadier General C. William Fox, Jr., MC, USA, USU SOM Class of 1981, Commanding General Brooke Army Medical Center, Great Plains Regional Medical Command,** Fort Sam Houston, Texas, Correspondence to USU, April 13, 2005.

The Military Unique Curriculum of the USU SOM is what sets it apart from every other medical school in the United States. While the Department of Military and Emergency Medicine serves as the hub for this component of the curriculum, military medicine is integrated into the courses of virtually every academic department in the SOM... Military medicine is based on a paradigm of the life-cycle of our patient population, which often runs from birth, through active duty, to retirement and death. This life-long relationship results in an investment in fitness and health promotion greatly exceeding other health care models. Prevention of illness and injury, through interventions such as vaccinations, improved body armor, and lifestyle changes, is a principal focus.... having a cadre of physicians trained in triage and mass casualty management, as well as weapons of mass destruction, is invaluable.

- **Colonel Charles Beadling, USAF, MC, CFS, USU SOM Class of 1984, Acting Chairman, Department of Military and Emergency Medicine,** Correspondence to USU, February 16, 2005.

Among America's 126 medical schools, USU has a mission unlike any other. Medical education in other schools focuses on the individual down to the subcellular components. This purview is only a subset of the USU perspective. In support of the warfighter, USU must take a worldwide view to include preventive medicine and atypical medical care. Since U.S. forces are expected to be deployed in every geographic and climatic region in the world, USU prepares its students for any and all circumstances.

- **USU Board of Regents,** *2003 Annual Report to the Secretary of Defense*, June 30, 2003, page 2.

The USU SOM provides the Military Health System (MHS) with career-oriented medical officers who possess the knowledge, skills, and attitudes essential for effective deployment during Joint Service operations. The SOM's principal focus is on military medicine, which involves the prevention of disease and injury; the management of combat trauma; health promotion; and, diagnosis and treatment by medical personnel who are integral to the military operations they support. This focus also involves syndromes and injuries that are either rare or unknown among non-military populations.

Military medicine requires a solid background in tropical medicine and hygiene, parasitology, and the use of epidemiologic methods and preventive medicine. **The SOM, for example, provides its medical students with approximately 130 hours of study in these areas, compared to about 13 hours found in the typical civilian medical school curriculum.** Additional knowledge in such areas as military medical intelligence, psychologic stresses of combat and trauma, the medical effects of nuclear, chemical, and biological weapons, and the medical effects of extreme environments - aerospace, undersea, tropical or desert conditions - is essential to a uniformed physician's ability to properly support his/her military commander's responsibility for troop fitness. Also critical to a military physician's focus is his or her ability to provide disease prevention and health promotion under austere conditions.

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First-Year Curriculum.

Background. Four SOM Departments, Military and Emergency Medicine, Preventive Medicine and Biometrics, Medical History, and Psychiatry, share the major responsibility at USU for teaching the military unique course material; *material that is not found in the curriculum of any other medical school in the United States*. In addition to the usual first-year medical school courses, such as Anatomy, Physiology, Biochemistry and Human Behavior, students at the SOM have required courses in Military Studies, Military Medical History, Tropical Medicine (Diagnostic Parasitology and Medical Zoology), as well as Biostatistics and Epidemiology, all of which utilize military data and case studies. This provides an introduction to the scope and content of military medicine and exposes each student to all of the medical systems within the Uniformed Services. Students are focused on the delivery of preventive and treatment services in the *field* or in a deployed environment.

Overview of Military Studies. The Department of Military and Emergency Medicine is responsible for teaching the Military Studies Curriculum during the first and second years of medical school. ***Military Studies I*** is taken during the first year of medical school. It consists of an introduction to military medicine, combat medical skills and military applied Physiology. It also includes the history course taught by the Department of Medical History. ***Introduction to Military Medicine*** ensures that students begin their studies with a common understanding of how each Service conducts combat operations and provides medical support during joint operations. As the course title implies, it introduces students to military medicine through lectures and small group discussions. The content of the course includes the expectations that line officers have placed on the medical corps, the distribution and classification of combat casualties, the impact of disease and non-battle injuries on readiness, and the career patterns of the military medical officer. The remainder of this course deals with the echelon system and evolving modular concepts of battlefield health care and an introduction to the areas of chemical, biological, radiological, nuclear, and high explosive (CBRNE) warfare. By the end of the first (Fall) term of medical school, students have gained an understanding of the content, knowledge base, literature and vocabulary of military medicine and a framework for relating and integrating the content of their basic science courses with military medicine.

During the second instructional period (Winter) of the first year, the students learn the basic skills of pre-hospital care in a course entitled, ***Combat Medical Skills***. The course presents an abbreviated version of the *Combat Medic Course* with emphasis on patient assessment at the scene of injury. It includes an introduction to the patient history and physical examination skills later taught in the *Introduction to Clinical Methods Course* and is linked to the content of the fourth-year course in advanced trauma life support. Additional skills introduced are bandaging and splinting; airway, breathing and hemorrhage control methods; field triage and prioritization for transport; and, communicating relevant findings to the next level of care. Students put their skills to work in an emergency response mass casualty triage, treatment and evacuation exercise later in the course. The course also exposes students to non-commissioned officer (NCO) corpsmen and medics and civilian paramedic instructors, helping to prepare them for their future roles in supervising and providing sustainment training to these personnel when assigned to operational medical units. ***Military Applied Physiology*** is presented during the third instructional period (Spring) of the first year. This course parallels the traditional Physiology Course and also reinforces the concept, introduced during the Fall, that military medicine is a form of occupational/environmental medicine. The physiologic responses to stressors common to the military environment such as cold, heat, radiation, diving, altitude, and exercise are presented in the context of their impact upon readiness.

By the end of the first academic year, each student has completed course work and experiences considerably greater than those required for medical officers entering active duty from other accession sources. The first academic year provides 40 weeks of instruction, one week of operational medicine, and five weeks of military medical field studies.

Operation Kerkesner.

Kerkesner focuses on introducing USUHS students to exactly the (military field and preventive medicine) **skills that they need to survive in combat... Weapons training, map reading, basic leadership and NBC defense. I saw that medical officers needed these skills time and time again in Iraq.**

- **Lieutenant Colonel Kevin Riley, MS, USAF, CENTCOM Special Operations Command Surgeon for Operation Iraqi Freedom,** Correspondence to USU, September 15, 2003.

I just returned from a *fantastic* morning at Quantico observing Operation Kerkesner. I had no idea that the training had reached such a high state of sophistication... Some of my observations included the following: how integrated and well thought out the sequence and content of the training was; how those students with prior military time helped the uninitiated ones so well; how professional and competent the Marine NCO cadre was. What a powerful lesson for those students to see how the NCO Corps truly is the backbone of the force; how impressed the two Thai Army officers and Japanese Naval officer were as they observed the training. USUHS no doubt is the global benchmark model; how the students praised this experience. Not one I spoke with had a negative thing to say.

- **Colonel Frederick J. Erdtmann, MC, USA, Hospital Commander, Walter Reed Army Medical Center,** Letter to the USU President, June 25, 1999.

Between the first and second year, all students participate in the required five-week course, ***Military Medical Field Studies*** (MMFS). The MMFS Course begins with instruction in military field skills, which include: operating a radio; navigating the land in daylight and at night; using preventive medicine principles; and, protecting oneself against CBRNE attacks.

The knowledge from this block of instruction prepares the students to successfully complete a one-week leadership laboratory exercise to be held at Fort Indiantown Gap, Pennsylvania. This exercise, ***Operation Kerkesner*** (named after a former Marine faculty member of USU), challenges the students' ability to overcome field problems through their own initiative and team work.

Operation Kerkesner focuses on small unit operations in a field environment. The exercise is conducted in two rotations; one half of the first-year class goes to the field at a time; the students are further broken down into platoons of approximately 20 personnel. This small group size ensures that each student has an opportunity to receive individual instruction and supervision during the training exercise. The

non-commissioned officers (NCOs) of USU and AFRRI are the primary instructors for this exercise. Not only does this ensure that the students receive quality training, it reinforces recognition of the skills and value of the NCO. The focus of the exercise is to train the students in critical military survival tasks and operational medicine, develop leadership skills, and instill a warrior ethos. Training tasks include small unit leadership, tactical casualty combat care, tactical evacuation, land navigation, hand-to-hand defense techniques, and starting intravenous infusions in a field setting. Evaluators from the Department of Military and Emergency Medicine and platoon advisors from USU live with the students and accompany them in all scenarios. Student leadership is rotated to place each student in a leadership position at the platoon level with all attendant responsibilities. Student leaders must know the medical threats (i.e., dehydration, insect-borne disease, sanitation, injury prevention, CBRNE avoidance and decontamination, and physical and psychological stress), which they may face and demonstrate how they would control these medical problems in their units.

This course initiates the student to the field skills and small unit leadership experience required for the successful completion of *Operation Bushmaster* during the *Military Contingency Medicine Course* in the fourth year. Beginning in 2005, ***Operation Kerkesner*** and *Operation Bushmaster* will occur simultaneously at Fort Indiantown Gap, Pennsylvania. This will allow the first-year students to participate in a Patient Context Exercise as part of *Operation Bushmaster*, introducing them to the stresses of being a patient on the battlefield; to enable them to view tactical evacuation systems in action; and, to see military medicine conducted in a resource-constrained environment. Their participation in *Operation Bushmaster* will also give the first-year students an idea of the challenges that they must be prepared to face during their fourth-year exercises.

Operation Kerkesner has been visited by a variety of active and reserve United States military medical personnel and has served as a model for the Navy's Rapid Deployment Medical Force (RADMF) Training Program. Elements of the course have been used in Public Health Service Disaster Medical Assistance Team (DMAT) Training. Foreign military medical personnel have also attended the course to gain material to enhance their own training programs (i.e., the United Kingdom, France, Israel, Japan, Singapore, Thailand, and Mexico).

Non-Medical Operational Assignments. The field exercise is followed by the final portion of *Military Medical Field Studies*. Those students without prior service experience are required to spend three weeks with an operational unit in their parent Service. Students may be afloat on a Navy ship, at a Navy flight training center, with an Army or Marine Battalion, with noncommissioned officers (NCOs), or with other junior officers learning the military occupational environment and developing a *non-medical* perspective on military medicine. Coordinators at each site report on the students' performance to the Department of Military and Emergency Medicine. Students with prior service may elect to participate in research, work with a mentor, or attend a military qualification school such as: Basic Airborne Training; Basic Air Assault School; Survival, Evasion, Resistance, and Escape (SERE) School Training; Underwater Operations (SCUBA); or, training for the Expert Field Medical Badge (EFMB); about 30 percent of each class participates in a qualification exercise. At the completion of the operational clerkship, each student writes a paper relating the experience to his or her Service's core values.

Special Programs in Operational Medicine Offered by the Casualty Care Research Center. The Casualty Care Research Center (CCRC) is a division of the SOM Department of Military and Emergency Medicine. The CCRC, created in July of 1989, is staffed by military and civilian physicians and scientists. The center provides USU medical students and other medical personnel disciplined training and research

experiences in combat casualty care, medical counterterrorism, injury epidemiology, trauma management and other related areas. USU's medical students attend the CCRC programs either as an elective during their fourth year or as part of their summer experience between the first and second years of medical school.

In October of 2004, many of the programs previously developed by the CCRC were transferred to the Department of Homeland Security (DHS) Office of Protective Medicine. Through a collaborative agreement, a myriad of important educational opportunities remain available to medical students through the CCRC and the DHS Office of Protective Medicine.

Medical students have the opportunity to attend one or more of the following CCRC training opportunities:

1. ***Emergency Medical Technician-Tactical (EMT-T) Course.*** The EMT-T Course was developed to provide relevant training to medical providers who work within the law enforcement special operations community. Topics in the EMT-T Program include: clandestine drug laboratory raids; emergency medical care in barricade situations; care under fire; forensic science during patient care; medical operations, planning and medical intelligence; wounding effects of weapons and booby traps; special medical gear for tactical operations; personal protective gear; special needs for extended operations; preventive medicine; and, injury control;

2. ***Emergency Medical Technician - Tactical Advanced Course.*** The Tactical Advanced Course includes the following topics: advanced technology applications in remote assessment methodology; legal concepts and moot court; individual health care concepts; concepts in crisis intervention; sleep/wake cycle management; emerging issues in chemical restraint; operational dermatology; management of training injuries; nutrition and fitness for tactical teams; and, less lethal weapons systems;

3. ***Weapons of Mass Destruction (WMD) Training Program.*** The Center offers a variety of training programs in the area of WMD to include: Out-of-Hospital Response Training; and, a Health Care Facilities Course. Topics of instruction include: identifying potential chemical-biological-radiological-nuclear (CBRN) devices; threat recognition and evaluation; formulating a building response/evacuation plan; the role of quarantine and isolating exposed individuals; psychological effects of a WMD incident; and, principles of hasty decontamination; and,

4. ***Tactical First Responder.*** Originally developed for the Diplomatic Security Service of the Department of State, this 40-hour program addresses all of the elements of the first responder national curriculum, but in the context of a tactical medical provider who must operate in a hostile and austere out-of-hospital environment. This course includes both didactic and scenario-based, practical learning experiences.

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Second-Year Curriculum.

Extensive Hours of Preventive Medicine Training. During the second year, along with Pathology, Microbiology, Pharmacology, Ethics, Human Behavior, Introduction to Clinical Medicine and Physical Diagnosis, students have additional hours of preventive medicine, including an introduction to operational (field) preventive medicine; health promotion in the military; physical fitness programs, policies, and implementation strategies; environmental and occupational health; and, health services administration. On October 3, 2001, the Dean, SOM, issued a revised policy directing that *all second-year medical students must certify as Basic Life Support (BLS) providers at the "C" (health care provider) level.* The certification is in effect for two years and is provided during the sophomore year to maintain certification through May of the senior year. Students must be certified prior to the beginning of their third-year clerkships. The Department of Military and Emergency Medicine schedules BLS certification sessions for the second-year students; however, students may elect to certify through officially approved off-campus courses under the auspices of the American Heart Association or the American Red Cross. These courses must be at the "C" level.

Military Studies. The second-year ***Course in Military Studies***, conducted by the Department of Military and Emergency Medicine, focuses on two general areas: the science base for the practice of military medicine (wound ballistics, the effects of conventional and unconventional weapons effects, protective equipment, and decontamination procedures); and, the command-and-staff functions of military medicine in Joint Commands (i.e., medical planning, medical logistics, medical evacuation systems, and blood programs).

The second academic year spans 35 weeks of instruction within the SOM. After final examinations, students prepare for the ***United States Medical Licensing Examination (USMLE) Step 1***, which is the first of three examinations in the process of becoming a licensed physician. The current second-year class will complete the computer-based testing (CBT) for the USMLE, Step 1, between May and June of 2005, prior to beginning the first rotation of their third year. The Office of Student Affairs reported that the USU first-time pass average for the Step 1 Board Examination, during 2004, was 93 percent.

Second-Year Medical Ethics Course. The second year, ***Medical Ethics Course: Ethical, Legal and Social Issues in Medicine*** was initiated during the Summer of 1977. The course, taken by all medical students, provides extensive material directly related to military medicine including the special concerns with sending soldiers back to combat, treatment of prisoners and civilians, and limitations imposed by the Geneva Convention. A new issue posed this year was whether treatment of prisoners who had been terrorists should be any different from that of prisoners who had been former enemy soldiers fighting for countries that had signed the Geneva Convention. Military physicians who had served in Iraq and on the Navy hospital ship, *USS Comfort*, discussed their experiences and the ethical issues they confronted during this year's course. Other material stresses the resolution of hospital-based ethical problems in Federal institutions.

A wide range of speakers is annually provided during the course: **Gordon Livingston**, a local psychiatrist and West Point Graduate, shares lessons learned during the Vietnam Conflict; and, **Jon Spelman**, an actor, presents a dramatic performance of the play, *Frankenstein*, giving the students the opportunity

to learn how they can use the arts to increase their awareness of the nuances of human emotions, as in this case, of research participants. **Edmund Pellegrino**, an internationally known physician ethicist, discusses conflicts that arise for medical students and optional approaches to resolving them.

There are four major military issues that all USU students address: 1) Military Medical Triage. The students learn that the practice of military medical triage sometimes departs from traditional civilian medical procedures and that the top priority may be to further the military mission. The students discuss how the varying priorities may be necessary to save the most lives, both military and civilian; 2) Captured Enemy Service Persons. The USU students learn that if the captured enemy is ill or injured, he/she is to be regarded as a patient. There is no option for physicians or any service persons to mistreat prisoners or to treat them *less equally* for revenge or military gain; 3) Exploitation of Vulnerable Patients. In this session, the students learn that in medicine, physicians should never exploit vulnerable patients for military gain; and, 4) Self-Incriminating Information. In this final area, students are instructed that the two primary tasks of military physicians are to keep their patients healthy and to provide commanders with accurate information regarding the health of their patients and that these tasks take precedence over acting as surrogate investigators to help enforce the law.

Over 150 faculty from USU, NNMC, WRAMC, and other distantly located facilities led discussions on these and other issues with small groups of students. The final lecture, since 1999, has been given by **Patricia Heberer**, an historian at the Holocaust Museum. In this year's session, the students viewed a film actually shown to the German public by the Nazi Government during World War II to justify policies of euthanasia for selected patient groups such as those who had severe mental illness. The students learned that all physicians are susceptible to immoral behavior and that they must avoid the mistakes of the past.

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Third-Year Curriculum.

Overview. The third-year curriculum consists of clerkships in the principal specialties of medicine. Much of the instruction is provided by uniformed clinical faculty with an emphasis on teaching the special military relevance of the various clinical experiences. Of special note are the military clinical settings for instruction (military tertiary medical centers, military community hospitals, military outpatient ambulatory care clinics, and troop dispensaries on active military bases) and the patient population, which includes active duty personnel presenting diseases and injuries incurred during both training and combat deployments.

As a part of their training and work during their clerkships, USU SOM third (and fourth-year students) provide hundreds of thousands of hours of patient care related services in the MHS hospitals during each calendar year. Such services include: examination of patients; providing post-operative care; organization and maintenance of the completion of the medical history and physical examinations of patients; assistance at surgery and the delivery of newborns; and, updating progress notes in patient records. These services, performed by USU medical students in a supervised setting, provide necessary and important support in the provision of quality medical care to the men, women, and children receiving treatment throughout the MHS.

All SOM departments are providing a clinical experience within the ambulatory setting. The ambulatory services of all departments have grown significantly within the past seven years. ***The Department of Medicine has taken the lead and devoted extensive resources to the planning, development, and implementation of a comprehensive ambulatory teaching experience. The department's program and its faculty have become nationally recognized for accomplishments in this area; and, numerous publications in peer-reviewed journals and presentations have resulted***.

Clerkships Represent the Entire Spectrum of the MHS. USU medical students complete their third and fourth-year clinical clerkships at over 22 military hospitals, representing the entire spectrum of the Military Health System (MHS). The third-year class of approximately 165 students has eight required clinical clerkship rotations of six weeks each, for a total of 1,320 third-year rotations: Family Practice (six weeks); Obstetrics/Gynecology (six weeks); Pediatrics (six weeks); Psychiatry (six weeks); Internal Medicine (two six-week sessions); and, Surgery (two six-week sessions). Five of the USU SOM academic departments - Medicine, Surgery, Obstetrics and Gynecology, Pediatrics, and Psychiatry - use the Walter Reed Army Medical Center and the National Naval Medical Center as major clinical instructional sites.

The following teaching hospitals have affiliation agreements with the USU SOM: 1) **United States Army - (7)** Walter Reed Army Medical Center, Washington, D.C.; Brooke Army Medical Center, San Antonio, Texas; Tripler Army Medical Center, Hawaii; Madigan Army Medical Center, Tacoma, Washington; Eisenhower Army Medical Center, Fort Gordon, Georgia; William Beaumont Army Medical Center, El Paso, Texas; Womack Army Medical Center, Fort Bragg, North Carolina; 2) **United States Navy - (3)** National Naval Medical Center, Bethesda, Maryland; Naval Hospital, Portsmouth, Virginia; Naval Hospital, San Diego, California; and, 3) **United States Air Force - (6)** Malcolm Grow Medical Center, Andrews Air Force Base, Maryland; Wilford Hall Medical Center, Lackland, Texas; USAF Medical Center, Wright Patterson Air Force Base, Ohio; USAF Medical Center, Keesler Air Force Base; David Grant Medical Center, Travis Air Force Base, California; and, USAF 3rd Medical Group Regional Hospital, Elsmendorf, Alaska. In addition, USU students rotate through the following Medical Centers or Community Hospitals for at least one of their required specialty clerkships: 1) **United States Army - (3)** DeWitt Army Community Hospital, Fort Belvoir, Virginia; Martin Army Community Hospital, Fort

Benning, Georgia; Darnall Army Community Hospital, Fort Hood, Texas; 2) **United States Navy - (2)** Naval Hospital, Jacksonville, Florida; Naval Hospital, Pensacola, Florida; and, 3) **United States Air Force - (1)** USAF 96th Medical Group Hospital, Eglin Air Force Base, Florida.

The SOM Associate Dean for Clinical Affairs (ADA) provides oversight for relationships and interactions between the SOM and its clinical teaching sites. Issues of concern from all parties can now be readily addressed as changes in the military health care delivery system are put into place. The ADA visits the major Military Medical Centers on a regular basis; reevaluates and updates the SOM's affiliation agreements with its major teaching affiliates; and, ensures that the agreements are consistent with the requirements of the Liaison Committee on Medical Education (LCME) and with the current needs of the Military Medical Centers, the Military Services, and the University. This process ensures that clear routes of communication exist and that areas of mutual interest are appropriately defined and addressed, which has resulted in overall improved relationships between the SOM and its numerous clinical sites. During 2004, the ADA conducted site visits to: the Dwight D. Eisenhower Army Medical Center (DDEAMC), Fort Gordon, Georgia, and the 88th Medical Group, U.S. Air Force Medical Center, Wright-Patterson Air Force Base, Ohio. Affiliation agreements were updated and concluded with both institutions. The Office of Clinical Affairs also staffed and concluded updated affiliation agreements with the National Naval Medical Center, Bethesda, Maryland; the Naval Medical Center, Portsmouth, Virginia; the Madigan Army Medical Center, Tacoma, Washington; the William Beaumont Army Medical Center, El Paso, Texas; and, the Tripler Army Medical Center, Hawaii; all of which were visited during 2003. Site visits planned for 2005 include the 89th Medical Group, the Malcolm Grow Air Force Medical Center, Andrews Air Force Base, Maryland; the Walter Reed Army Medical Center, Washington, D.C.; and, the Womack Army Medical Center, Fort Bragg, North Carolina.

The Department of Obstetrics and Gynecology Implements the Use of Simulation Laboratories. The Department of Obstetrics and Gynecology implemented an expanded skills curriculum for residents and medical students, which included a life-sized birth simulator. The simulator is located in a dedicated, mock-up delivery room in the Department's Education Unit, which is located in Building 1 at the National Naval Medical Center, in Bethesda, Maryland. **Colonel Andrew Satin, USAF, MC, Professor and Chair of Obstetrics and Gynecology, USU SOM Class of 1986,** designed a curriculum employing the use of the birth simulator in the instruction of medical students during their core third-year clerkship and residents through their four years of training. Divided into small groups, the medical students each have an opportunity, under direct faculty supervision, to conduct a virtual, life-like *normal birth* so that they can gain the knowledge, skills, and confidence required of them during actual clinical care labor and delivery settings. The medical students have been universally enthusiastic in their appreciation of this novel instructional opportunity. The resident curriculum has been designed to instruct more advanced residents in the principles of obstetric forceps applications and vacuum-assisted delivery, breech delivery, and shoulder dystocia management. **Colonel Ernest Lockrow, MC, USA,** and **Major Amy Asato, MC, USA,** developed an extensive gynecologic simulation program for medical students and residents. Under their leadership, trainees can now perform simulated gynecologic examinations, hysteroscopic, laparoscopic, and pelvic surgery on simulators to introduce and improve their techniques. Measurable increases in knowledge, skills, confidence, and overall proficiency of the residents have resulted; and, the program has been presented at several national forums. The American Board of Obstetrics and Gynecology, among other organizations, has taken considerable interest in the further evolution of these instructional programs. The Department faculty was selected to present a series of workshops on this novel program to the Association of Professors of Gynecology and Obstetrics. Doctor Satin was also asked to address the Council of Resident Education in Obstetrics and Gynecology and the Association of Professors in Gynecology and Obstetrics in their plenary session at their annual international meeting.

The Department of Obstetrics and Gynecology Successfully Utilizes Standardized Patients to Assure Mastery of Required Knowledge, Skills, and Professional Behaviors. Educators in Obstetrics and Gynecology and accreditation bodies have been concerned that a medical student could complete a required core clinical clerkship without the assurance of the mastery of essential clinical skills or the demonstration of the essential components of professionalism. The SOM Department of Obstetrics and Gynecology initiated a program of assessment utilizing standardized patients (trained actor-patients) in an Objective Structured Clinical Exam (OSCE) format with one-on-one faculty supervision at the end of each core six-week clinical clerkship. These sessions are conducted at USU's Medical Simulation Center for clerkships in the National Capital Area; and, sessions are provided in the Obstetrics and Gynecology Clinics located at the integrated Wilford Hall USAF Medical Center in Lackland, Texas; the Brooke Army Medical Center in San Antonio, Texas; and, at the Tripler Army Medical Center in Hawaii. As other clinical programs have done, the Department can now assure that the students have been observed correctly performing essential techniques. The following procedures are performed utilizing standardized patients during the OSCE: the clinical breast examination; the speculum pelvic examination; the bimanual pelvic examination; an interview of the adolescent gynecologic patient; and, an interview of the menopausal patient. Another innovation is the provision of direct, on-the-spot feedback to the medical students from the standardized patients and the faculty supervisors both at the conclusion of each of the essential techniques, or procedures, listed above, and following the final examination sessions. The standardized patients and faculty reinforce the skills and also provide guidance for improvement. Feedback from the students has been extremely positive; they understand the importance of being able to exhibit the required skills and behaviors; and, they particularly appreciate the immediate guidance and the opportunity to improve their performance of these essential skills. As a consequence, this clerkship experience leaves a permanent impression on the students, which eventually benefits their future patients during subsequent clinical encounters.

An Innovative Clinical Clerkship Management Tool Utilizing Palm-Type, Hand-Held Computer Devices. The Department of Obstetrics and Gynecology has also led the development and implementation of an innovative clinical clerkship management tool utilizing palm-type, hand-held computer devices for medical student performance evaluations. Beginning in 2000, the residents in the USU, NNMC, and WRAMC-sponsored Uniformed Services Residency in Obstetrics and Gynecology Program have utilized a hand-held device operating system application, which was developed by faculty in the USU Department to establish a cumulative data base encompassing the residents' individual patient care management experiences. On a weekly basis, each resident downloads his or her data to the main department computer through a *hot sync* function. This allows the program director to have timely, on-going access to the experiences of all of the residents. During 2004, trainees were enabled to report their experiences at remote sites by utilizing a web-based program. The positive impact of this program was published in the peer-reviewed premier journal, Obstetrics and Gynecology, and was showcased in a special session at the Annual Meeting of the Council on Resident Education in Obstetrics and Gynecology in March of 2001. Since the residents are the primary teaching interface with the USU medical students, a new program has been developed in the SOM Department so that the residents can enter their assessments of the performance of the USU medical students who are rotating on their respective services. ***When the residents download their own patient care experiences on a weekly basis, their evaluations of the USU medical students are automatically downloaded as well. The Clinical Clerkship Director then has ready access to the progress of all of the medical students in a format that is automatically updated each week.*** Data for all students in the Department of Obstetrics and Gynecology is downloaded weekly through a secure Internet site so that the Clerkship Coordinator can monitor the progress of all students at all sites. ***This process helped USU to meet the LCME requirements for uniform experience and assessment for all USU medical students across all sites***.

Pediatric Clinical Rotation - Experiences with Exceptional Family Members. Several years ago, the Pediatric Clinical Rotation initiated home visits to families with children with special needs. This program has grown to include a set of educational experiences integrated across the four years of medical school. In the first year, medical students have an opportunity, coordinated with the Human Context in Medicine Course, to visit families or adult patients with special needs. In the second year, the Bioethics Course opens with a three-hour session that includes a lecture, film, and small-group discussions with parents whose children have been critically ill during the first year or two of their lives. In addition to the Pediatric Home Visit in the third year, the Pediatric Clinical Rotation includes two sessions in which faculty members and parents collaboratively offer insights about developmental issues of childhood and provide practice and feedback about pediatric medical interviews. The Family Medicine Clinical Rotation now teaches about advocating for patients and families through standardized patient experiences, a three-and-a-half hour session taught collaboratively with adults with chronic medical conditions, and a home visit that focuses on medical and community resources. A Pediatric Research Elective in the fourth year provides an opportunity for students to: design and initiate research that involves parents and patients for providing insights about health care experiences; plan research that incorporates patients and families; and, respond to surveys and interviews.

With continued funding from the Health Resources Services Administration, Department of Health and Human Services, **Janice L. Hanson, Ph.D., Research Assistant Professor, USU SOM Department of Pediatrics, Secondary Appointments in the Departments of Medicine and Family Medicine,** and **Colonel Virginia Randall, MC, USA (Ret.), Associate Professor, USU SOM Department of Pediatrics, Secondary Appointment in the Department of Family Medicine,** furthered the involvement of patients and family members as advisors and co-teachers in medical education. These advisors have chronic medical conditions and/or disabilities, or have a child or other family member with a special need. They share their experiences with medical students during all four years of the curriculum. A new activity developed with input from these advisors presents pediatric applications of evidence-based medicine. Doctor Hanson convened focus groups of the advisors to develop descriptions of physicians' professionalism from the perspective of patients and parents, with plans to develop tools to teach and evaluate professionalism among medical students.

Pediatric Cardiology Module - Cardiac Auscultation at the Simulation Center. Beginning in 2000, an innovative case-based, interactive scenario in pediatric cardiology was introduced to the third-year medical student pediatric clerkship through the advanced technologies of the National Capital Area Medical Simulation Center. This teaching module is an interactive session between the instructor and medical students with discussions on the events of the cardiac cycle and a demonstration of their relationship to heart sounds and murmurs in the normal child as compared to the child with congenital heart disease. The instructor's presentation is supported by slide presentations and the use of computer software. The demonstration of heart sounds and murmurs is based on a CD-ROM, which contains audio files of actual pediatric cardiac sounds as well as other visual resources and are available to each student at his/her individual work station.

The teaching objective is for the student to recognize the normal clinical findings in the cardiovascular examination of the child and to differentiate between physiologic and pathologic sounds and murmurs. The teaching module is expected to complement the clinical experience during the clerkship and to help develop physical diagnostic skills. This educational experience has been presented at the National Meeting of the Council on Medical Student Education in Pediatrics. To date, over 222 medical students have received this educational intervention as part of their third-year pediatric clerkship. The students' evaluations have been very positive as expressed in their post-clerkship critiques.

The Department of Pediatrics Fosters an Initiative to Bring Teaching Across Multiple Sites - Using a Web-Based Program. Starting in the Fall of 2004, the Pediatric Education Section of the Department of Pediatrics developed an innovative way to teach Anticipatory Guidance to third-year medical students across multiple learning sites. This project was showcased in a poster presentation at the Council for Medical Student Education in Pediatrics (COMSEP) Annual Meeting held in April of 2005, at Greensboro, North Carolina. After selecting Anticipatory Guidance as a priority topic from the COMSEP Evaluation Task Force list of core competencies for pediatric clerkships, **Major Michael Pelzner, MC, USA, Assistant Professor, USU SOM Department of Pediatrics,** in conjunction with **Lieutenant Colonel W. Scott Jones, USAF, MC, Assistant Professor, USU SOM Department of Pediatrics,** and **Janice L. Hanson, Ph.D., Research Assistant Professor, USU SOM Department of Pediatrics,** designed a teaching module within the Blackboard (Bb) Learning System Academic Suite to deliver standardized content. This module explains a strategy for delivering anticipatory guidance, key topics for toddlers and preschoolers, and tips for building rapport during wellness encounters. After reading through a PowerPoint presentation, exploring web-based content from Bright Futures at Georgetown University (*www.brightfutures.org*), and completing an on-line case from the Computer-Assisted Learning Project in Pediatrics (*www.clippcases.org*), students post comments and questions within a Blackboard forum. A faculty preceptor posts initial questions, then, along with several parent teaching assistants, monitors and contributes to the on-line discussion and answers students' queries on a daily basis over a designated timeframe. The program has been well received by students and faculty as a beneficial resource for asynchronous learning. Using the Clinical Weblog to track the medical students' patient encounters across the seven individual teaching sites, the faculty will be able to identify gaps in the standardized curriculum and use similar modules to fill them. This will help to ensure that the clerkship meets Liaison Council on Medical Education (LCME) requirements for standardized experiences and assessments for all USU medical students across all seven of the geographically separated teaching sites.

The Department of Pediatrics Uses the Blackboard Learning System Academic Suite to Host a High-Stakes Portion of the Third-Year Clerkship. Beginning with the 2005-2006 Academic Year, students in the Pediatric clerkship now have to complete three on-line cases from the Computer-Assisted Learning Project in Pediatrics (*www.clippcases.org*), and then take a high-stakes examination, worth 5 percent of their clerkship grade. CLIPP represents a collaborative effort between Dartmouth University and the Council on Medical Student Education in Pediatrics (COMSEP) to develop a cadre of on-line simulated patient learning experiences that cover the COMSEP curriculum used by over 80 percent of the medical schools in the United States. *By using CLIPP cases, the Department of Pediatrics continues to promote the standardization of the clerkship curriculum across all seven of the department's geographically separated sites*.

The Pediatric Clinical Rotation - Students' Clinical Observation of the Preceptor (SCOOP). Several years ago, the Pediatric Education Section developed a novel approach for teaching communication, interpersonal skills, and professionalism in a clinical context. With written cues, which focus their observations, students observe their preceptors, who intentionally model desired behaviors during clinical encounters. Students and preceptors discuss the observed patient-physician interaction during post-encounter sessions. Most medical students have rated the SCOOP process as highly beneficial; and, they also have reported professional behaviors gained through the process. **Lieutenant Colonel Woodson Scott Jones, USAF, MC, Assistant Professor**; **Janice L. Hanson, Ph.D., Research Assistant**; and, **Colonel Jeffrey L. Longacre, MC, USA, Associate Professor,** all members of the Department of Pediatrics, published their description of this unique approach in Teaching and Learning in Medicine, during 2004. The Education Section has given multiple invited workshop presentations on the SCOOP process at national meetings. The

SCOOP process has been adopted by other medical schools for teaching their medical students, expanded to resident education by residency program directors, and lauded in the national publication of the Council on Medical Student Education in Pediatrics.

Patient Simulation Laboratory - A Collaborative Effort.

Invited Presentations.

- **2004 American TeleMedicine Association** and the **2005 International Meeting on Medical Simulation, *Distant Regional Anesthesia Training*,** excerpts from the presentations:

  During 2003-4, the USU Patient Simulation Laboratory (PSL), along with researchers from the Walter Reed Army Medical Center and USU, validated the concept of *utilizing the distant education network* for teaching the hands-on-skills required to insert regional block needles for pain relief following severe extremity trauma. Traditionally, the mainstay of post-surgical pain management for severe extremity trauma is systemic and long-term administration of powerful analgesics. However, any such systemic treatment includes effects on many organ systems distant from the site of trauma. Two techniques that offer an alternative treatment are long-acting peripheral nerve blocks (PNB) and out-patient continuous peripheral nerve blocks (CPNB). Benefits of PNB include superior pain control, improved patient satisfaction, decreased stress response to surgery, reduced operative and post-operative blood loss, reduced post-operative nausea and vomiting, and reduced costs. CPNP can extend these benefits well into a patient's recovery, outside of the hospital, with little or no systemic medication. This anesthetic technique is currently only utilized to its full potential at a few specialized hospitals. Few anesthesiologists receive adequate training in these techniques. This study, investigated advanced video telecommunications technology combined with new brachial plexus simulator technology to allow regional anesthesia experts to effectively train students in block techniques using distance learning. *This effort addressed the question whether students, using a simulator at a site removed from the instructor, can receive effective guidance via advanced video telecommunications technology. An increase in scores between pre- and post-simulation training demonstrates that the objective information had been successfully conveyed to the students over the distant education network*.

A collaborative project between the National Naval Medical Center's Department of Anesthesiology and two USU SOM Departments Anesthesiology (ANE) and Anatomy, Physiology, and Genetics (APG) led to the development, in 1997, of a fully interactive medical training laboratory at USU: the Patient Simulation Laboratory (PSL). As mannequin-based simulation was new not only to USU, but also quite rare, in 1997, throughout the world of medical education, almost every program offered by the USU PSL was developed and implemented by the USU PSL staff. The PSL has been in daily use since its first course offering. This instructional facility supports training in combat casualty care, anesthesia, critical care, trauma, and emergency medicine. Students gain experience in recognizing problems, developing decision-making skills, and refining techniques and procedures. ***During 2004, the PSL provided over 600 hours of University-wide support for course offerings***.

The University has access to a total of 12 mannequins that span the range of ages from newborn to adult, both male and female (four at the USU Military Medical Simulation Center (SIMCEN) located at Forest Glen; two at the Naval Medical Education Training Command located in Building 1, at the National Naval Medical Center in Bethesda, Maryland; and, six mannequins at the PSL). There are scores of *customizable events* ranging from anaphylaxis to ventricular fibrillation that can be assigned to the simulated patients. The *mannequin patient* presents a wide range of responses to the following computer-controlled scenarios: lung ventilation visibly detectable by chest movement; eye lid open/closure; pupil dilation/contraction; palpable pulses; arm motion; thumb twitch; tongue and airway swelling; and, urination. In addition, the *mannequin patient* responds to the following student implemented actions: drug and gas administration; chest tube placement; needle thoracentesis; pericardiocentesis; and, cardiac pulmonary resuscitation. Every kind of signal that can be captured from a *real* patient can be displayed and analyzed on the Clinical Monitor. Patient Simulators typically have over two dozen predefined *patients*, each with unique underlying characteristics and cardiovascular, pulmonary, and metabolic attributes. These patient profiles are modified and new *patients* are constructed to match the teaching objective. The patient simulator can present a wide variety of medical problems and altered physiological states as well as difficult airway management and equipment set-up and/or malfunction. ***In addition, the simulators present scenarios applicable to combat casualty care, anesthesia, critical care, trauma, and emergency medicine***.

The drug models include intravenous and inhaled anesthetics, neuromuscular blockers, cardiovascular agents, and a wide range of infusion pharmaceuticals, which affect the simulators as they would human patients. The automated drug recognition system provides for realistic drug administration; each syringe is equipped with a unique computer chip that represents a specific drug. Thus, the instructor can: select the type of a case and adjust the speed and severity to match the ability level of the student; review and/or repeat clinical situations until a desired level of performance is accomplished (a lesson can be *paused* to provide the instructor the opportunity to give the student feedback); evaluate student clinical decision-making judgments; schedule training at convenient times; and, use the simulator as a research tool for training or evaluation methodologies.

During 2004, the patient simulators, located in the USU SOM Department of Anesthesiology, were used to train three primary groups: medical students; graduate nursing students; and, anesthesia residents. In addition, training was also provided to the following TriService, post-graduate military medical readiness groups: the Army Medical Center and School from the Walter Reed Army Medical Center; the Air Force Critical Care Air Transport Teams from the Malcolm Grow Medical Center; and, USS COMFORT clinical staff from the National Naval Medical Center.

The PSL has completed its seventh year of teaching 167 first-year SOM students a simulated cardiovascular reflex scenario as part of their Physiology Course. The simulator presents normal human physiologic values within a typical clinical setting, demonstrating the basic interactions of heart rate, blood pressure, cardiac output, stroke volume, and circulatory resistance; each year, the SOM students have expressed strong enthusiasm for this simulation presentation. The simulated patient definitely adds a clinical context to some of the physiological and pharmacological principles presented to both the medical and nursing students. In addition to these hands-on small group (eight students) simulations, the PSL provides live, interactive distance education presentations to the second-year SOM students for illustrating simulated, clinical examples during their Pharmacology lectures. Thus, the PSL brings the hospital to the students through a newly installed Advanced Distance Education Network (ADEN), designed by the PSL staff.

During their ***third-year anesthesia rotation***, SOM medical students are instructed in the basic fundamentals of anesthesia and the role of the anesthesiologist in surgery. They learn to connect a patient to

external life support sources, such as an oxygen mask, a ventilator, or manual ventilation via endotracheal intubation. For the first time, USU medical students combine the lessons learned about the physiology of gas exchange and physiologic and pharmacologic responses, while actually performing the procedures and administering anesthesia on the patient simulator, without putting a patient, or themselves, at risk.

During 2001, 2002 and 2003, the USU PSL team received the *First Place Research Award* for their presentations at the Society for Technology in Anesthesia International Meeting on Medical Simulation. The PSL study shows a remarkable reduction in error detection time, when doctors view clinical monitor data via a prototype Head Mounted Display. This concept of providing immediately accessible critical vital sign data to clinicians via a Head Mounted Display is the basis of a patent application by the PSL team; PSL's winning presentation showed acceptance by surgeons to wearing a Head Mounted Display in the operating room. **During 2004, uniformed non-pediatricians deployed to combat zones received pediatric-specific refresher training through a DVD entitled, *Hostile Environments Life-Saving Pediatrics (HELP)*, which was created and produced within the PSL.** On-going training is also provided to nurses from the Walter Reed Army Medical Center in the *ICU Certificate Program*, where the PSL simulators present advanced patient care scenarios that include extensive equipment use and critical situation team training. And, Uniformed Anesthesia Residents from the Walter Reed Army Medical Center, the National Naval Medical Center, and the Naval Medical Center at Portsmouth receive *Introduction to Anesthesia in the OR* within their first week and then monthly-provided Anesthesia Crises Resource Management Team Training Sessions throughout the year.

An Innovative Introduction to the Surgical Clerkship. The third-year surgical clerkship is preceded by a three-day introduction to clinical models and operative procedures utilizing the National Capital Medical Simulation Center (SIMCEN) and the animal surgical facilities in the USU Department of Laboratory Medicine. This innovative and comprehensive approach, which occurs with third-year SOM students every six weeks, familiarizes the students with patient interactions associated with the presentation of common surgical illnesses as well as introducing various surgical techniques, priorities, equipment and procedures. The advanced technologies of the SIMCEN employ live patient models well versed in specific disease histories and symptoms. Disease scenarios include common problems such as pancreatitis, appendicitis, ectopic pregnancy, and gallbladder disease. Students perform comprehensive, focused histories and physicals on two to three *patients* under real-time observation by a faculty-teaching surgeon. The encounter is also taped for interactive student-teacher reviews during small group discussions of techniques and performance. In addition to the patient encounters, separate laboratories are held to teach and perform knot tying, endotracheal intubation and ultrasound fast examination techniques on mannequins. A human patient simulator is used to teach acute trauma care, utilizing various scenarios creating positive and negative outcomes to specific student treatment choices. There is also a virtual reality laboratory for the performance of technical skills including suturing and cricothyroidotomy. The unique experience offered by the two days in the live animal laboratory introduces students to actual operative procedures on an anesthetized animal under sterile conditions. The instrumentation, scrub procedures, apparel and routine are true replicas of actual clinical hospital settings. Students are assigned in groups of three or four to a certified teaching surgeon for the entire two days. Abdominal procedures including appendectomy, splenectomy, bowel resection and cholecystectomy are carried out with each student serving as surgeon, scrub technician, and assistant. The thoracic phase is carried out including a pneumonectomy, pericardial window, aortotomy, and chest tube placement. This intense three-day session prepares the student anatomically, physiologically and procedurally for the clinical rotation. The clinical rotations include the standard third-year clerkship in general surgery and surgical specialties. Small group mentoring preceptorships are held weekly as well as Distinguished Professor Lectureships, which are held bi-monthly.

Simulation Center Technologies Utilized During the Surgery Rotation. The advanced technologies of the National Capital Medical Simulation Center are being used in simultaneous fashion every twelve weeks to introduce the third-year medical students to their surgery rotations. The students are provided both an introductory discussion and a lecture regarding an abdominal surgery laboratory to be held the following day. The patient actors are used to provide an hour-long, three-patient opportunity to elicit, from the medical students, a medical history; and, the patient actors enable the medical students to perform a focused physical examination for a variety of acute abdominal diseases (i.e., appendicitis, pancreatitis, gallbladder disease, ectopic pregnancy, and others). These encounters are videotaped and the tapes are reviewed with the teaching surgeon during the subsequent hour. A suturing and knot-tying laboratory is held in the computer laboratory using both web-based and senior surgeon instruction. Plastic mechanical models (Laerdal/MPL) are used to teach such skills as endotracheal intubation, chest tube insertion, and surgical airway. The human patient simulator (MEDSIM) is used to teach the best approach to simple clinical problems such as hypotension or hypoxemia. The virtual reality laboratory experience includes starting an IV (HT Medical), creating an anastomosis (BDI), and performing bronchoscopy (HT Medical). Two additional simulators are used to teach emergency trauma procedures: pericardiocentesis and diagnostic peritoneal lavage. These last two trauma skills simulator technologies were developed at the National Capital Area Medical Simulation Center. Through the use of this multi-modality facility, the experience of medical students can be enhanced so that the first time some of the above-described problems or procedures are encountered, it will not be with a live patient, but rather with the most appropriate simulator. Approaches, such as those provided by the advanced technologies of the Simulation Center, are expected to minimize the possibility of medical errors.

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Fourth-Year Curriculum.

We're not going to go off fighting the enemy, but anywhere the troops go, we're going to go, too," said Army 2nd Lt. Tom Dowd, a graduate of the U.S. Military Academy now preparing for a job in orthopedics at Brooke Army Medical Center. "Here, we're learning our roles so when we're out there (in combat), we're better able to come through."

Air Force 2nd Lt. Valerie O'Brien said Operation Bushmaster, and her entire course of studies at the Uniformed Services University, is preparing her for the challenges she will face practicing medicine in a joint environment. "This allows us to be more familiar with the assets the other services have and what they do," she said. "It's exposure we just wouldn't be able to get in a different environment."

After completing their studies at the Uniformed Services University, graduates accept a seven-year military service obligation. "But the type of person you have here doesn't think of it as an obligation," said Dowd. "This is what we want to do. Our greatest aspiration is to provide care to the servicemembers fighting the global war on terror."

"This is our chance to serve that population that gives so much for our country," agreed O'Brien, a former enlisted soldier whose father also retired from the Army.

"There's a real sense of pride here," she said. "We're here because we believe in what we're doing, and that's how we view our training and our job."

- **Donna Miles, American Forces Press Service,** *Future Military Doctors Hone Field Medicine Skills*, Defense News, Camp Bullis, Texas, February 17, 2005.

Yours is the only medical school in America which trains physicians to be ready for duty on the bottom of the ocean or on the surface of the Moon, and any place in between...As students, you went through one of the most rigorous programs in the country... You prepared yourself to treat patients anywhere in the world, under any circumstances.

- **President Ronald Reagan**, Commencement Address, SOM Class of 1987.

Overview. The fourth academic year begins with a one-week ***Military Preventive Medicine Course***. Early in the fourth year, approximately 167 students also take the USMLE Step 2. The 167 fourth-year students have ten four-week blocks for 1,650 rotations. Students must complete an eight week subinternship as well as the following four-week clerkships: Military Contingency Medicine; Military Emergency Medicine; and, Neurology. The senior year concludes with a one-week ***Transition to Residency Course***.

Military Medicine. The Department of Military and Emergency Medicine conducts two courses in the senior year (***MCM*** and ***MEM***) that are required for graduation from the SOM. The ***Military Contingency Medicine (MCM) Course*** is one month long and focuses on medicine in a deployed environment and in response to a terrorist attack. The first three weeks of the course are currently devoted to reviewing and expanding basic concepts and manual skills learned in the first two years of Military Studies. While first-year medical students are taught first aid at the medic level in the *Combat Medical Skills Course*, the ***Advanced Trauma Life Support (ATLS) Course*** is taught at the physician level to the fourth-year students. The USU SOM is one of only three medical schools in the United States that requires ATLS for all students. Additional topics in the first three weeks include the management of combat trauma, chemical-biological-radiological (CBR) exposure, environmental injuries, and combat stress. Special sections focus on triage, women's health issues, and working with non-governmental organizations in disaster relief or humanitarian assistance missions. Integration with national strategic goals, operational missions, and tactical objectives is emphasized in all aspects of the course. Incorporated into the MCM curriculum is ***Introduction to Emergency Medicine (EM)***; this course teaches and gives students practice in the problem-solving techniques used by EM physicians. It prepares the SOM students to excel in a four-week Emergency Medicine clerkship entitled ***Military Emergency Medicine (MEM)*** - described below). The final week of MCM is dedicated to ***Operation Bushmaster*** where the lessons learned can be applied in multiple simulated situations during a field training exercise.

Operation Bushmaster.

A fictitious Middle Eastern country, Pandakar, was facing internal unrest and taking casualties. Fourth-year medical students at the Uniformed Services University of the Health Sciences were called in to treat the patients. Operation Bushmaster, a 72-hour exercise designed to expose future military doctors to the rigors of field medicine in a combat environment, was under way here. As they treated "patients" - actually students at nearby Fort Sam Houston - the medical students from the Army, Navy, and Air Force applied the clinical training they received... in Bethesda, Md., as well as the tactical skills they would need to survive on the battlefield. "They have to defend themselves while they take care of the casualties," said Army Major Steve Currier, director for military contingency medicine at the Uniformed Services University. That requires skills not taught in traditional medical schools: land navigation, nuclear-biological-chemical decontamination and weapons skills, among them, as well as the ability to live and operate in the field. Although field skills are an integral part of Operation Bushmaster, Currier stressed that it's a practical exercise in tactical combat casualty care, not in infantry tactics. "We're teaching students to care for patients from the point of injury to the first surgical capability," he said. Increased emphasis on treating patients as quickly and far forward as possible presents challenges traditional medical students aren't likely to encounter, from treating patients while under fire to working with far less equipment than they'd find in fixed medical facilities. "The battlefield is not the same as home," Currier said. "Resources are limited, evacuation times are prolonged, and there are specific threats. It's a challenging environment."

- **Donna Miles, American Forces Press Service,** *Future Military Doctors Hone Field Medicine Skills*, Defense News, Camp Bullis, Texas, February 17, 2005.

The field training exercise, ***Operation Bushmaster***, uses the constructs of two United States Army Battalion Aid Stations, one United States Marine Corps Battalion Aid Station, and, since 2003, an Air Force Expeditionary Medical Support System (EMEDS) to allow students to practice skills learned in the *Military Contingency Medicine Course* and throughout the *military* and *traditional* SOM curriculum. These treatment facilities are designed to represent first- and second-echelon levels of care within the forward battlefield environment. Real-world and notional modular teams have been integrated into the scenarios to reflect current medical doctrine and deployment practices for all Services. Each of the Services provides equipment and medical personnel to provide students experience with front-line medical evacuation procedures and platforms. ***The scenario reflects a Joint Task Force (JTF) deployment involving all four Services and incorporates updated policies established by the Secretary of Defense.*** In the past, the Bushmaster scenario was set in Bosnia; currently, it is based in the Middle East. If another area of the world becomes significant, USU instructors will change the cultural concerns and the diseases to match the designated area.

Students are placed in a resource-restricted environment and are forced to coordinate with theater assets and their *sister* Services in order to accomplish their missions and deliver optimal patient care. The students practice land navigation, radio communication and other field training, triage and combat casualty care, to include site selection and the establishment of their respective medical element. ***Medical and nursing students work together as a team to provide field medical care***.

Drawing on their classroom lectures, SOM students are encouraged to develop novel solutions to many operational scenarios and problems. They also are forced to learn and practice the different evacuation requirements and procedures that each Service utilizes in the battlefield environment. ***This exposure allows the students to quickly integrate themselves into a future joint combat environment.*** Students occupy at least three leadership and medical evaluation positions throughout the field operation. They are evaluated on the following: medical proficiency while handling dozens of simulated casualties; leadership skills under demanding and stressful conditions; mission accomplishment and focus; and, teamwork. Drawing on all that the students have learned while at USU, Operation Bushmaster is viewed as the capstone exercise of their military medical education, allowing them to hone their skills in a simulated combat environment.

Previously conducted three times each at Camp Bullis in San Antonio, Texas, beginning in July of 2005, the exercise will be conducted once a year at Fort Indiantown Gap, a National Guard base in western Pennsylvania. The didactics will continue to be conducted on-site at USU; Operation Bushmaster will occur simultaneously with Operation Kerkesner. The new model will train the entire fourth-year medical school class as well as graduate nursing students and foreign medical students from the United Kingdom, France, Japan and Mexico. The exercise will run much as it did in Texas, with the exception of an increase in platoon size and an increased number of leadership positions. The new iteration will also use first-year medical students as simulated casualties. As such, they will receive training on role playing as well as disease, non-battle injuries and combat trauma wounds prior to the exercise. They will provide feedback to the faculty on the treatment rendered and act as safety officers. This should prove to be a valuable experience as the first-year students will experience what it feels like to be a patient on the battlefield. The first-year students will also spend time with physicians in the moulage tent who will answer questions about disease processes and trauma care.

In USU Quarterly, **Major Troy Johnson, MC, USA, USU SOM Class of 1995**, was interviewed reference his position as the Academic Director for Bushmaster. Within 18 months following his graduation from USU, Major Johnson, a flight surgeon with a special operations unit, was faced with a real-world mass

casualty situation overseas involving the United States Marines who did not have a physician with their unit. Major Johnson had to provide care within a Marine Battalion Aid Station; he knew what to do, due to the training he had received at USU, and was subsequently decorated for his actions.

Emergency Medicine Clerkship. The USU SOM requires all students to complete a ***Clinical Clerkship in Emergency Medicine*** prior to their graduation as physicians. In preparation for their clinical work in an Emergency Department, all of the senior students participate in an intensive overview of Emergency Medicine incorporated into the *MCM Course*. During this didactic phase, students are taught how emergency medicine physicians problem solve. Lecturers demonstrate the steps they use when evaluating patients in the Emergency Department. In small group discussions, led by experienced emergency medicine physicians, students have the opportunity to practice problem-solving techniques. Lectures, small group discussions, and assigned readings give the students the skills they need to work in an Emergency Department. Students leave for their clinical rotations with a solid understanding of Emergency Medicine.

Students may choose from a variety of sites (military and civilian) to perform their Emergency Department clinical rotations. All military hospitals having training programs in Emergency Medicine are open to USU SOM students. These include: the Darnall Army Community Hospital at Fort Hood, Texas; the Madigan Army Medical Center in Tacoma, Washington; the Naval Hospital in San Diego, California; the Naval Hospital in Portsmouth, Virginia; the Medical Center at Wright Patterson Air Force Base, Ohio; and, the San Antonio Uniformed Services Health Education Consortium, which encompasses the Wilford Hall Medical Center in Lackland, Texas, and the Brooke Army Medical Center located in San Antonio, Texas. In addition, USU SOM students can choose from among several high-volume, trauma intensive civilian sites including: Charity Hospital in New Orleans, Louisiana; the Ben Taub General Hospital in Houston, Texas; and, the University of Maryland Medical Center in Baltimore, Maryland. In the Emergency Department, students function under the supervision of experienced Emergency Medicine physicians and are expected to be active members of the Emergency Department team as they care for patients of all ages and with a variety of medical and surgical problems. Students are encouraged to take part in the didactic activities of the Emergency Department in addition to patient care. Each year, about ten USU SOM students choose Emergency Medicine as their career choice; many have gone on to become leaders in Emergency Medicine.

Operational Electives. The Department of Military and Emergency Medicine, through its Education Division or one of its three centers, sponsors several electives in operational medicine. These may include clinical rotations in military emergency departments or aerospace medicine clinics, enrollment in military courses, or attendance at the Joint Readiness Training Center. Qualification as a flight surgeon may be obtained through either the United States Air Force School of Aerospace Medicine or the United States Army School of Aviation Medicine; during the past years, the Army School has altered the timing and structure of their course specifically to enable USU SOM students better access to this form of occupational medicine. Whereas only one student had attended in the previous two years, five students and one faculty member attended during 2001; four of those six were the top four graduates of the demanding six-week Army course. Nine students attended during 2002. Two students worked in a trauma center in Armenia before their graduation in 2002. And, three students were sponsored by the USU Center for Disaster and Humanitarian Assistance Medicine (CDHAM) to accompany an Air Force unit on a humanitarian mission

to El Salvador during 2002; in 2003 and 2004, CDHAM provided funding for two fourth-year USU SOM students to participate as part of a nutrition-based study in Honduras.

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USU SOM Curriculum Stresses a Military Focus. In addition to the military unique curriculum described above, ***the USU SOM academic departments and faculty have structured all of their courses to include: topics specific to military medicine and not covered in the traditional medical school curriculum; and, teaching examples and cases drawn from military medicine.*** This content focus is reinforced by the fact that many of the faculty (one third of the billeted basic science faculty and two-thirds of the clinical faculty) are uniformed officers representing the Army, Navy, Air Force, and the Public Health Service; these unformed instructors provide experience and contextual correlations during their teaching of traditional topics. ***The unique practice of military medicine is woven throughout the four years of medical school.***

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Curriculum Renewal.

Background. The SOM curriculum utilizes a variety of educational experiences and learning formats, including lecture, laboratory, clinical correlation, small group discussion, computer and web-based experiences, patient simulator, standardized patients, and experiential exercises. The SOM vision for the undergraduate curriculum is that the science of today is taught in an environment that will foster increased long-term, self-directed learning tomorrow. Toward this end, the SOM Executive Curriculum Committee (ECC) completed an exhaustive study of the undergraduate curriculum, and revisions are on-going to minimize the traditional curricular *stovepipes* through course integration and the increased use of clinical material.

In both the first and second years of medical school, there is a heavy emphasis on small group learning. In the first year, this takes the form of laboratories in Structure and Function and discussion groups in Human Context. Additionally, the Introduction to Clinical Medicine Course starts in the first year and begins to develop history-taking and physical diagnostic skills. In the second year, laboratories continue in Pathology and Microbiology, while there is increased use of a small group *problem-based learning* educational format. In both Pathology and Clinical Concepts, groups of 8 to 12 students team with a faculty member to review clinical scenarios. The format of these encounters is designed to flow seamlessly into the second-year portion of the Introduction to Clinical Medicine Course and the clerkships during the third year.

Integration of Clinical Medicine and the Basic Science Experience. There are numerous examples of clinical medicine being integrated into *the basic science experience*. Close collaboration between the Departments of Radiology and Radiological Sciences (RAD) and Anatomy, Physiology, and Genetics (APG) led to the development of computer-based learning resources correlating basic anatomy with the radiological representation of normal and pathologic states. The integrated structure and function curriculum (Physiology and Anatomy) incorporates clinical faculty into its teaching. Several areas in particular - Cardiovascular, Renal, and Pulmonary - have demonstrated extensive clinical integration for many years. The Department of Pathology utilizes many clinical facilitators for its small group discussions. In addition, Pathology has coordinated the format of its case presentations with course directors from Clinical Concepts and Introduction to Clinical Medicine to provide a consistent experience for students. Pathology and Clinical Concepts have also coordinated their curriculum to provide the case scenarios in Clinical Concepts in sequence with topics being discussed in Pathology. The Department of Pharmacology also encourages clinical facilitators to participate in their small group exercises. There are currently several initiatives being considered to move basic science to the clinical years. One example is the proposal before the ECC to develop a computer or web-based curriculum of key basic science topics for exploration in the fourth year of medical school. These examples illustrate basic science and clinical integration either in place or under active consideration.

The Renewal Process. As the Chief Academic Officer of the SOM, the Dean is responsible for institutionalized curriculum management. Policy issues are reviewed and considered by the ECC, which reports to the Dean. Institutionalized curriculum renewal in the SOM is a high priority. The formalized process began with Phase I (1993-1995) of curriculum renewal. During Phase I, a steering committee with four subcommittees was developed to cover the following areas: 1) the history of medical education in the United States; 2) current experiments in curriculum reform; 3) curriculum at the USU SOM; and, 4) professional requirements and outcomes. Subcommittee reports and recommendations were generated and

reviewed by the faculty. The Dean's Office and academic departments then offered recommendations on how to best implement the committee's recommendations.

During Phase II (1996-1997), a steering committee and five subcommittees were established; they reviewed or completed the following: 1) objectives and goals; 2) an organizational template for curriculum management; 3) basic science and intra-departmental and clinical integration; 4) outcomes and evaluations of the clinical clerkships, both required and elective; 5) the establishment of topic groups; 6) subcommittee and topic group reports and recommendations; 7) a consensus on the recommendations and implementation planning; and, 8) the implementation process.

In February of 1998, the Dean charged the ECC with reviewing the December 1997 Curriculum Review Report produced during Phase II of the curriculum renewal process. The ECC was also charged with providing oversight for the planning process and the development of an implementation plan for curriculum renewal. This implementation plan is envisioned as an evolutionary process, with changes in the curriculum occurring in an incremental fashion. The ECC completed a draft of the SOM educational objectives, which was reviewed by the Dean and distributed to faculty, students, and staff for comment, and finalized in November of 1998. As changes to the curriculum occur, the SOM Dean has also directed that his office establish and monitor processes for student, faculty, and TriService evaluation of the curriculum changes.

Responsibilities of the Executive Committee on Curriculum. On August 2, 2001, the SOM Dean issued a Policy Memorandum updating the responsibilities of the USU SOM Executive Committee on Curriculum (ECC). The members of the ECC are drawn from the faculty, student body, and administration. Members are charged with representing the interests of the SOM as a whole; not as representatives of specific constituencies. The twelve members of the ECC have been designated with responsibility in seven areas to: 1) articulate, with the concurrence of the Office of the Dean, well-defined learning objectives that each student must meet to receive the M.D. Degree; 2) conduct a biennial review of each required course/clerkship in the SOM undergraduate curriculum, including content, format, teaching methods, course materials and methods for verifying that graduating students have met all of the learning objectives; 3) establish a prospective course/clerkship review schedule that gives course/clerkship directors sufficient time for proper consultation and preparation before the biennial review; 4) complete the course/clerkship review and assessment within 60 days of submission and presentation by the course/clerkship director, including submission of findings and recommendations to the Office of the Dean; 5) request, if necessary, through the Office of the Dean, further information, seek consultation with faculty or external consultants, and, when appropriate, sponsor symposia on curriculum to assist course/clerkship directors or topic group leaders in curricular planning or improvement; 6) periodically review institutional policy concerning the curriculum and educational practices to ensure consistency in the implementation and management of the undergraduate medical education program; and, 7) address other curricular issues and educational initiatives as charged by the Dean, SOM.

Issues addressed by the ECC in recent years include: coordination and/or changes to examination schedules; changes to the academic schedule grid; review of grading policies; review of mandatory attendance policy; discussion and response to student-generated After-Action-Reports; review of fourth-year requirements; consideration of a diversity curriculum proposal; review of changes to the first and second-year Introduction to Clinical Medicine Courses; and, review of the students' military responsibilities and their impact on the overall academic experience.

Responsibilities of Department Chairs and Faculty. The Department Chairs are responsible for establishing objectives, designing content and presenting each course/clerkship assigned to his/her department and for assuring that the performance of students is evaluated in an appropriate and timely manner and in accordance with institutional policy. The Chairs are also responsible for supporting Course or Clerkship Directors with requisite faculty and specifically for assigning teaching responsibilities to faculty members and for allocating departmental resources as required to support the courses, clerkships, selectives, and electives assigned to their departments. Course or Clerkship Directors for departmental-sponsored courses will be appointed by the responsible Chair; Course or Clerkship Directors for interdepartmental courses will be appointed by the Dean, SOM. Faculty members are the content experts in the individual basic science and clinical science disciplines and collectively are responsible for the SOM curriculum. The processes of curricular design, implementation and evaluation must involve broad participation by the SOM faculty both at the departmental level and at the institutional level. Every assigned faculty member is responsible, generally, in coordination with the Course or Clerkship Directors, for fulfilling his/her assigned teaching responsibilities in the areas of undergraduate curriculum.

SOM Dean Implements a Review and Revision of Educational Objectives for Compliance with LCME Guidance. During the past year, the Dean of the SOM appointed a subcommittee of the Executive Curriculum Committee (ECC) to review and revise the 1998 educational objectives and ensure compliance with the LCME's *Functions and Structure of a Medical School*, published in September of 2003. A draft report was submitted to the ECC for comment and then distributed to the faculty for their review and comment; then, the final document was to be submitted to the Dean for approval/disapproval. **William Haffner, M.D., CAPT, USPHS (ret.), Professor and Former Chair of Obstetrics and Gynecology,** was selected to chair the subcommittee. The subcommittee submitted the draft revisions of the educational objectives to the Dean, SOM, as reported to the Faculty Senate in July of 2005. Following his approval, the Dean will next task the ECC to work with the department chairs and course/clerkship directors to develop outcome measures for implementation, as appropriate, for each department/discipline covering each of the 42 objectives. The resulting outcome measures will be analyzed by the ECC, which will provide guidance to the course/clerkship directors reference any modifications that are required to meet the objectives or, alternatively, to reassess the objectives themselves through an on-going, continuous improvement process. (*A complete summary of this activity is provided earlier in the **ACCREDITATION** portion of this section of the Journal*.)

Center for the Enhancement of Healthcare Training and Outcomes. The Liaison Committee on Medical Education (LCME) has stated that medical faculty and students need to address gender and cultural biases in the delivery of health care and, in general, prepare providers to care for diverse patient populations. Under the direction of the Department of Medical and Clinical Psychology and the Department of Family Medicine, USU has developed a biopsychosocial training program for medical students and residents, nursing students, clinical/medical psychology graduate students and other prospective health care professionals, faculty, and staff. Serving as a partial but significant infrastructure for the USU SOM Center for Health Disparities Research and Education (USU/CHD), described below, ***the USU SOM Center for the Enhancement of Healthcare Training and Outcomes (CEHTO) enables the University to comply with the LCME requirements and improves USU's curricula by providing training to optimize patient adherence and enhance health care outcomes***. Specifically, CEHTO was established to: 1) infuse concepts and processes into existing curricula in order to advance a biopsychosocial philosophy and improve cultural proficiency; 2) provide a forum in which students have the opportunity to practice the skills and strategies

addressed in the classroom; 3) facilitate the development of culturally respectful relationships - inside and outside of the USU community; and, 4) evaluate the impact of this initiative and continuously improve and refine the training provided.

Fundamentally, ***CEHTO is designed to teach current and future health care professionals how to increase their effectiveness. Its ultimate aim is to train providers to use a wide knowledge base, interpersonal and communication skills, and cultural awareness to effect the most beneficial treatment for patients from diverse backgrounds***. As a component of the Family Practice Clerkship Curriculum, for example, medical students receive didactic and experiential training. Via facilitated conversations, small and large group exercises, and multi-media presentations, students learn about how cultural factors affect them, their patients, and their interactions with others. Experiences such as these foster an appreciation of cultural diversity, the patients' overall health needs, and, most importantly, how our own beliefs and biases can impact medical decision-making and patient care. Moreover, this training gives SOM students the opportunity to consider, rehearse, and evaluate specific strategies to deal most effectively with diverse multi-cultural populations. Complementing CEHTO training, Family Medicine curricula provide hands-on, experiential training modules that utilize standardized patients (patient actors) at the USU Military Medical Simulation Center (SIMCEN). Using realistic behavioral simulations, this state-of-the-art medical simulation center provides a unique forum in which participants can practice, develop, and refine new skills, and translate increased cultural awareness into culturally proficient behaviors. Detailed feedback is provided and individualized behavioral prescriptions are generated to assist participants in setting objective goals for improvement.

During 2003, the University and the SOM Departments of Family Medicine and Medical and Clinical Psychology applied for, and successfully received, a substantial grant from the National Center for Minority Health and Health Disparities (NCMHD/NIH) to sponsor the USU Center for Health Disparities Research and Education, referred to as *Project EXPORT*. **Evelyn L. Lewis, M.D., MA (CDR, MC, USN, Retired), SOM Department of Family Medicine,** served as the initial Principal Investigator on the NCMHD/NIH grant; upon her departure, **Richard Tanenbaum, Ph.D., SOM Department of Medical and Clinical Psychology,** was designated as the Principal Investigator. **David S. Krantz, Ph.D., Professor and Chair, SOM Department of Medical and Clinical Psychology,** is the Center Director; and, **Lori Dickerson-Odoms** is the Program Manager. As part of Project EXPORT, CEHTO assists in meeting the following objective: to develop workshops and other educational forums that focus on disseminating critical knowledge about health disparities and teaching practical skills in order to maximize culturally proficient health care service delivery.

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Departmental Review. A program was adopted by the School of Medicine in 1998, which mandated each department to conduct a *self-study* every five years or at the time of the appointment of a new chairperson. The self-study would be followed with a review of the self-study by a group of *peers* from outside of the University. From 1999 through 2004, self-studies and external reviews have been completed by the following Departments: Anesthesiology; Dermatology; Family Medicine; Military and Emergency Medicine; Obstetrics and Gynecology; Pediatrics; Pharmacology; Neurology; and, Radiology and Radiological Sciences. Other departmental reviews pending completion include: Anatomy, Physiology and Genetics; Medical History; Medicine; Pathology; and, Psychiatry. The results of these studies will be used to chart future courses for these departments in education, research, and community service.

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STUDENT AFFAIRS

When asked how my career has been influenced by my medical school education at USUHS, I can summarize the discussion to a simple phrase: I became a military physician, not merely a physician in the military... USUHS was the catalyst from which my entire career has evolved. Today, more than ever, this catalyst is necessary if we are to train and retain military physicians who place enormous value on the unique art and science of a military medical profession. We must have a cadre of military medical officers who practice the art and science of military medicine with an understanding of the past, where we have come from, applying new capabilities and skills within the context of military operations and be able to envision and work toward a more capable, flexible and agile military medical system in the future.

- **Brigadier General C. William Fox, Jr., MC, USA, USU SOM Class of 1981, Commanding General, Brooke Army Medical Center, Great Plains Regional Medical Command,** Fort Sam Houston, Texas, Correspondence to USU, April 13, 2005.

Class of 2008. During August of 2004, the School of Medicine (SOM) matriculated its twenty-ninth class (the Class of 2008). The 1,826 applicants, representing all 50 states, competed for 167 positions. There were approximately 11 applicants for each position, which allowed a diverse and highly qualified selection of candidates with a motivation toward public service. The Class of 2008 includes 63 Army, 51 Navy, 51 Air Force, and 2 United States Public Health Service medical students. The demographics of the class are depicted as follows:

- Seventy-seven students (46 percent) were associated in some way with the military before USU matriculation. Of those,
    - Thirty-three students served previously as officers; ten had previously served as enlisted personnel; sixteen were service academy graduates; sixteen were direct graduates of ROTC programs; and, two were reservists;
- Forty-nine students (29 percent) are women;
- Twenty-six class members (16 percent) are minority students (including 8 students from groups classified as underrepresented by the Association of American Medical Colleges); and,
- The average age of the entrants at the time of application was 24.9 years.

All members of the Class of 2008 hold Baccalaureate Degrees; thirteen students hold Master of Science Degrees and two have been awarded Doctorates. Biology was the most represented undergraduate major of the matriculants (34 percent); fourteen percent of the class had majors in Chemistry; Engineering

(nine percent); and, seven percent had majors in Biochemistry. Some of the other disciplines in which members of the Class of 2008 hold degrees are Microbiology, Political Science, Neurobiology, Psychology, Nursing, History, and Business.

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The Office of Student Affairs. Throughout Fiscal Year 2004, the Office of Student Affairs (OSA) was engaged in personal and/or professional academic counseling and career guidance for the 668 students in the SOM. Beginning in September of each year, OSA conducts well over 300 formal interviews. In 2004, this process formally began with the post-matriculation interviews of all 167 freshmen from the first-year class.

Structured Interviews for the First Year Class. The purpose of the MS-I (medical student-first year) interview is to engage each new medical student in a relationship with the OSA and the office staff who will manage his/her professional development and career guidance. The interview is open with an emphasis on the future partnership (or the individual management and consulting network) that will exist between each student and the Associate Dean and two Assistant Deans in OSA. The interview covers five areas: 1) Transition - the move to Washington, i.e., housing, getting settled, family issues; 2) Sense of Membership in the Class, i.e., within and between Services, professional, social; 3) Sense of Professional Vision, i.e., vision for what will come after medical school; 4) Adjustment to Student Life, i.e., how are they managing the 24-hour clock; and, 5) Inquiry about Image, i.e., aside from the roles of student, spouse, parent, athlete, what really defines them? Students are free to raise any questions, concerns, or thoughts. The interviews require considerable time, but have definitely proven to be worth the effort for both the students and OSA. These interviews set the stage for an on-going dialogue with each student over the four years of medical school and for establishing a sense of community throughout the student body.

Sponsor Program. In January of 2004, OSA allocated sponsor assignments for the newly accepted students in the Class of 2008. Upon acceptance to USU, members of the incoming class are individually matched with members of the current freshman class. First-year students serve as the incoming students' sponsors; the student-sponsor answers questions about housing, moving to Washington, D.C., family issues, military summer training, and many other topics. The student-sponsor relationship has proven to be a valuable tool in assisting the incoming students through matriculation.

USMLE Board Examinations. During Fiscal Year 2004, OSA prepared the second-year students for the United States Medical Licensing Examination (USMLE) Step 1 Board Examination, which the students took between May and June of 2004, prior to beginning their first of the third-year clinical rotations. During 2004, OSA provided class-wide presentations covering the fundamentals of the examination process, test preparation strategies, and test-taking skills. Students also organized their own informal programs, which have included mini-lectures on broad relevant topics, meetings with select faculty, and group study sessions. The USU first-time pass average for the Step 1 Board Examination during 2004 was 93 percent. Most of the USU fourth-year students (SOM Class of 2005) completed the Step 2 Board Examination between July and September of 2004. The overall performance for the Class of 2005 was strong; the average score for the class was 213; and, the pass rate was 93 percent.

Third-Year Clerkship Scheduling. Also during February, OSA met with the second-year students to schedule their third-year clerkships. To increase student input into the orchestration of their third-year clerkship schedule, OSA has moved from a system where students were simply given a pre-selected schedule of randomly assigned clerkships. The student now has the ability to place rotations of special interest in the first half of his/her junior year and the opportunity to experience potential career choices at an early point. In addition, the current system allows students to coordinate some of the required travel in their academic third year with personal events, which may already be planned or anticipated. The staff of OSA conducted Round 1 clerkship selections for the Class of 2006 using randomly assigned numbers. During the second week of February, students met as a group and picked rotations for the remaining rounds. The students shared equally in opportunities for assignments of choice and expressed their appreciation for the process.

Graduate Medical Education Planning Interviews. OSA conducts interviews with the third-year medical students during the fall term. During the first few months of the 2004 Academic Year, OSA met individually with members of the junior class to conduct fourth-year planning. The hour-long meetings covered Graduate Medical Education (GME) planning, specialty choice, interviews, and specific sequencing of senior rotations to maximize the selection of their residency of choice; again, available selections for senior-year rotations exceeded the general expectations of the students. OSA arranged program schedules, which enhanced student growth, professional experience, and individual preferences. A major product of this process is the ***Medical Student Performance Evaluation, MSPE*****,** or ***Dean's Letter***, which presents a comprehensive picture of each student's strengths. Selection for GME positions is competitive; OSA and students worked together to create the best nomination packages possible.

Graduate Medical Education Selection Board. The Joint Service Selection Board convened during the week of December 3-6, 2004; and, 168 USUHS seniors (the Class of 2005) were selected for PGY-1 positions: Army - 65; Navy - 51; Air Force - 52. The overall selection rate for FIRST CHOICE programs was 66 percent. USU had 112 out of 168 students match for first choice both in specialty and training site. Sixteen additional students from the Class of 2005 received their first choice in specialty, resulting in 76 percent (128 out of 168) receiving their first choice in specialty. One third of the class (34 percent) was selected for training in a primary care specialty. Fifty-seven seniors will begin their residency training during this Summer in the following areas: Family Medicine - 23; Internal Medicine - 14; Pediatrics - 13; and, Obstetrics and Gynecology - 7. This process once again demonstrated confidence in the USU SOM graduates by the directors of the MHS GME Programs.

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The USU Military Medical Student Association. The Military Medical Student Association (MMSA), a quad-service, student-run organization, originated at USU more than fourteen years ago. MMSA's goals include developing lines of communication among military medical students nationwide, providing information, and promoting morale and unity among future military medical officers.

Unlike USU medical Students, the Health Professions Scholarship Program (HPSP) students attend universities in the civilian sector; they receive tuition and books and are paid a monthly stipend while working toward their medical degrees. The HPSP students receive limited military training and influence while attending the civilian schools. In order to share the unique military training received at USU, MMSA has sponsored conferences where residency directors and medical specialty representatives from around

the country, and USU staff and faculty members present lectures and hold discussions on various topics, including service specific issues, military medical history, operational considerations of military medicine, and basic military concerns that affect both USU and HPSP medical students. The USU MMSA has also established the *MMSA Journal*, which provides valuable military information of interest to medical students; the MMSA goal is to make copies of the journal available to all HPSP students.

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ACHIEVEMENTS OF THE SOM ALUMNI

As President of the Association of American Medical Colleges, which represents the nation's 125 accredited medical schools as well as 400 major teaching hospitals and 90 academic and professional scientific societies, I write to express the Association's strong support for the unique role and mission of the Uniformed Services University of the Health Sciences. As I know you realize, this institution's alumni provide the backbone of the senior leadership of the three services' medical departments.

- **Jordan J. Cohen, M.D., President, Association of American Medical Colleges,** Letter to the Deputy Secretary of Defense, April 27, 2005.

USUHS graduates have proven the enormous value of their unique talents in every U.S. combat operation since 1980. As a former White House Physician, I can personally attest to the important contributions of USUHS graduates during the First Gulf War. As a member of the USUHS Board of Regents, I receive regular reports about the outstanding performance of USUHS graduates as combat medical leaders in Afghanistan, Iraq, and throughout the world. Many of our young men and women who have been wounded in the War on Terrorism owe their lives and their futures to USUHS graduates who are serving magnificently where they are trained to be - far forward on the battlefield.

- **The Honorable Lawrence C. Mohr, M.D., F.A.C.P., F.C.C.P., Member of the USU Board of Regents, Former White House Physician to the President,** Letter to USU, April 12, 2005.

As the Executive Agent of the Uniformed Services University of the Health Sciences (USUHS), I would like to comment on the extraordinary achievements of the University... USUHS SOM graduates, with retention averaging twenty years of active duty service, now represent over 22 percent of the total physician officers on active duty in the Armed Forces. And, as provided to the Congress during 2002, the median length of non-obligated service for physician specialists in the Military Health System, not including USUHS graduates, is 2.9 years; however, the median length of non-obligated service for USUHS graduates is 9 years. USUHS graduates are exceeding the original expectations of Congress when the University was established, thus ensuring physician continuity and leadership for the Military Health System... The USUHS-unique training centered in preventive medicine and combat-related health care is essential to providing superior force health protection and improving the quality of life for our service members, retirees, and families. USUHS also provides a significant national service through its continuing medical education courses for military physicians in combat casualty care, tropical medicine, combat stress, disaster medicine, and the medical response to weapons of mass destruction (WMD).

- **Vice Admiral Michael L. Cowan, Surgeon General of the Navy,** Testimony before the Senate Appropriations Committee, Subcommittee on Defense Health, April 30, 2003.

Recent tragic events and the current Global War on Terrorism clearly show the benefits of preparedness and training. It is gratifying to know USUHS is leading the way in preparing military healthcare professionals to meet current and future challenges.

- **Richard B. Myers, Chairman of the Joint Chiefs of Staff,** Letter to USU, March 29, 2002.

I deployed to the Gulf very early, August 11, 1990, as a senior medical officer with the Air Force Special Operations Command. Deployed in this capacity, my responsibilities ranged from flying training and combat support missions to representing my command at theater-level planning conferences... The heat in August was incredible, with temperatures up to 125 degrees. Yet our maintenance personnel had to work around the clock to get our aircraft combat ready. Just sleeping six hours in the heat caused dehydration to the point of dizziness. Our medical team was on the flight line and around our tent-city bringing sunscreen and ice water to the personnel because they could not drink 100 degree water out of a canteen.

My training at USUHS had prepared me for working in austere conditions without fixed facilities. **The tap water in our camp became contaminated by the sewer system, and water tanks had to be provided with chlorine levels monitored daily. Because of the *military medical history* classes I had at USUHS, I knew that disease and non-battle injuries could make an army ineffective before the battle began. *Preventive medicine* is an entire department and course of study at USUHS. I had the training and references...to avoid repeating the mistakes of previous wars... Because of the emphasis on *tropical medicine* at USUHS, I was able to advise the Commander and troops about potential infections and how to protect themselves... Because we *studied the air evacuation system* and did practice exercises using it at USUHS, I was able to coordinate a unique mini-mobile aeromedical staging facility at our intermediate operating base. This provided the transition from our helicopter rescue aircraft to the C-130 medical evacuation system. As our troop build-up progressed, hospitals from each Service increased. Because at USUHS I had been taught *the organization of medical systems in the other Services*, I was able to arrange referrals for our patients much more easily...We had no logisticians, but were able to obtain supplies through the Army depot system, which I also learned about at USUHS.**

Another area of major concern for our personnel was chemical warfare. Because of the thorough preparation and field training I had as a student at USUHS, I was *able to develop a training program in unconventional warfare, such as chemical and biological threats*, which increased confidence and decreased anxiety in our troops... When we deployed to our forward locations, there were no *designated disaster preparedness personnel*. The USUHS experience came in handy again, as I assumed those responsibilities. A plan for *decontaminating aircraft, vehicles, and personnel* was created. Materials were purchased and positioned to maximize readiness.

To summarize the impact of the 4-year immersion in military medicine at USUHS on my preparation for war, I appreciated the operational mission of my unit and how I, as a medical officer, fit into the process of planning and executing that mission. This went well beyond

treating patients. It involved analyzing the tactical situation, advising the Commander, and integrating with other Services. ***USUHS graduates were well prepared.***

- **Lieutenant Colonel Charles Beadling, USAF, MC, USU Class of 1984, (currently at the Rank of 0-6),** Testimony before the Senate Appropriations Sub-Committee on Defense, April 14, 1994, page 95.

General Overview. The graduating Class of 2004 was the twenty-fifth class to receive Medical Degrees from USU. ***As of April 2005, USU has granted 3,587 Doctor of Medicine Degrees; 2,695 of those graduates remain on active duty in the Uniformed Services (Army - 1,035; Navy - 780; Air Force - 792; USPHS - 88). As of April 2005, the active duty physician force in the MHS totalled approximately 11,495 physicians (Army - 4,140; Navy - 3,855; Air Force - 3,500). The 2,607 USU SOM alumni on active duty represent over 22.7 percent of the total physician force in the Department of Defense.*** USU graduates have a seven-year obligation, which only begins after the completion of three-plus years of residency training. This obligation is exclusive of any other service obligations they may have already incurred, such as graduation from one of the Service Academies. After twenty-five graduations, data is now available to document that the USU SOM graduates are meeting, or surpassing, the goals established by the founders of USU. For example, Congress had envisioned that the USU SOM graduates would equal at least 10 percent of the total physician force; the USU SOM has more than doubled that original milestone; and, where Congress hoped for retention rates close to 70 percent, the USU graduates have also exceeded that goal. The average USU physician graduate serves 20 years on active duty. USU has steadily proven to be an excellent accession source for career-physician officers uniquely skilled in the practice of military medicine.

An example of the critical role of USU graduates in the MHS was reported to the Congress in both 2002 and 2003, when the Surgeon General of the Navy testified that the Center for Navy Analysis (CNA) had provided significant data on the retention of physicians. The Navy Surgeon General informed the Congressional Committees that his most undermanned specialties were general surgery and all surgical subspecialties, orthopedic surgery, diagnostic radiology, anesthesiology, and urology. Many of these specialties are critical wartime specialties and shortfalls could have a negative impact on medical readiness. ***Overall, the median length of non-obligated service for physician specialists in the MHS averages only 4.4 years. That average drops to 2.9 years when USU graduates are excluded; the median length of non-obligated service as a specialist for USU graduates is 9 years***.

Significantly, in April of 2003, CNA released *Phase II: The Impact of Constraints and Policies on the Optimal-Mix-of-Accession Model* of its major study, Life-Cycle Costs of Selected Uniformed Health Professions. The second of six major findings states: *policy-makers need to consider the costs and benefits for each accession source. For example, even though USUHS accessions are the most costly* (the General Accounting Office has reported that when all Federal costs are included, the cost of a USU graduate is comparable to the cost of an HPSP graduate), ***their better retention makes USUHS the most cost-effective accession source for filling 0-6 grade requirements*** (page three of the report).

***Reliability and Sustainability of Accession Sources*: Of current accession programs, USUHS is the most reliable and cost-effective source for filling senior leader requirements. USUHS currently provides 23 % of all active duty physicians. Removing USUHS as an accession source introduces significant risk of physician shortfalls. Accessions from the Health**

Professions Scholarship Program (HPSP) alone are an unproven source for proper design and mix of the medical force structure. Congress and DoD created the current integrated and complementary triad of physician accession sources to provide the numbers, specialties and experience (rank) required to meet MHS missions. The HPSP provides the bulk of the required physicians of lower rank and experience, only 5 % of which remain on active duty beyond their initial obligation. USUHS provides a stable cadre of career military physicians and other healthcare professionals in all specialties.

***Potential Risk of Change*: Absent any one of the three accession sources, it is unlikely that the remaining two can support an all-volunteer military medical force. The Center for Navy Analyses (CNA) estimates that it would require at least 895 additional HPSP accessions annually to replace the current 165 USUHS graduates. This may not be feasible in today's environment for medical school applicants. Currently there is a general decline in the number of U.S. medical school applications, an increase in the number of female applicants (who generally have less or little long term interest in military service), and a general decrease in medical students applying for HPSP scholarships** (currently, less than one applicant per HPSP slot)**. Additionally, current HPSP recruitment practice favors the accession of physicians less likely to specialize in meeting critical wartime requirements.**

***Retention*: USUHS graduate retention is greater than other sources. The USUHS Alumni represent approximately 13 % of new medical officer accessions, 23 % of the total medical officer force, and 33% of those in the ranks of 0-5 and 0-6. Reliance on other sources would require a larger recruitment pipeline (to ensure numbers and specialty mix), reduce assignment flexibility, and ultimately increase total system costs.**

***Support to Military Operations*: The need for USUHS as a guaranteed and proven source for the right physician leaders will be even more important as DOD fights future wars. Because of their selection and subsequent training, USUHS graduates seek assignment to operational units in large numbers (51 % of medical officers assigned to Army Special Forces are USUHS graduates). These core competencies have value not only for our military operational mission but also in DOD's support for Homeland Security. Refereed publications report that USUHS is the premier source of training for readiness, contingencies, community and public health, and other mission imperatives.**

- **The Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense, Health Affairs,** *The Uniformed Services University of the Health Sciences*, White Paper, April 18, 2005, pages 2-3.

In just a short timeframe, USU graduates have become well respected in their medical specialties and provide continuity and leadership for the MHS serving in areas of military medicine ranging from special operations and hospitals, to the White House and the newly established Department of Homeland Security, to deployments to Afghanistan and Iraq, and to assignments aboard ships at sea or with the Blue Angels, the NASA Johnson Space Center, the Secretary of Defense, and the Congress of the United States. Following the terrorist attacks on September 11, 2001, USU graduates were strongly represented among the medical relief workers at the World Trade Center and at the Pentagon; they led the efforts to identify remains at the Dover Port Mortuary; and, USU graduates assisted in directing the Nation's medical response in the wake of the anthrax attacks. On May 12, 2003, USU was provided with an *initial* (and ever-increasing)

listing of physicians deployed for Operation Iraqi Freedom from the Army; of the 346 Army physicians, 67 (almost 20 percent) were USU SOM alumni. Other alumni are engaged in patient care or research in military hospitals and clinics around the world, administering to active duty officers and enlisted personnel, retirees, and family members. Currently, 15 of the 60 Specialty Consultants to the Army Surgeon General are USU graduates; 10 of the 44 Specialty Consultants to the Navy Surgeon General are USU graduates; and, 19 of the 72 Specialty Consultants to the Air Force Surgeon General are USU graduates. And, as quoted above, USU SOM graduates represent 51 percent of the physicians assigned to the Army Special Operations Forces. USU graduates are, and continue to provide, a strong cadre of leaders who ensure the continuity of military medicine.

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Second USU Alumnus Promoted to 0-7. USU's second flag officer, **Brigadier General Charles "Bill" Fox, MC, USA, USU Class of 1981**, was initially triple-hatted as the Corps Surgeon for the XVII Airborne Corps, Commander of the 44th Medical Command, and Director of Health Services at Fort Bragg, North Carolina. He is currently assigned as the Commanding General at the Brooke Army Medical Center, Great Plains Regional Medical Command, at Fort Sam Houston, Texas. During 2003, he received the Norman M. Rich Department of Surgery 2003 Baron Dominique Jean Larrey Award for Excellence in Military Surgery from the USU Surgical Associates. (**Rear Admiral E. Connie Mariano, MC, USN (Retired), USU SOM Class of 1981,** was the first USU alumnus to be selected as a flag officer.)

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Third USU Alumnus Selected for Promotion to 0-7. USU's third alumnus selected for flag officer was **Brigadier General Bill Germann, USAF, MC, USU Class of 1982;** he was selected during 2003 to command the 89th Medical Group, Malcolm Grow USAF Medical Center, at Andrews Air Force Base, Maryland.

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Fourth USU Alumnus Selected for Promotion to 0-7. USU's fourth alumnus selected for flag officer was **Brigadier General Thomas Travis, USAF, MC, USU SOM Class of 1986**. He was promoted to Brigadier General on September 3, 2004; BG Travis is the Commander of the 311th Human Systems Wing, Brooks City-Base (formerly Brooks Air Force Base), Texas.

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USU Alumni Earn Promotions to 0-6.

USU Army Graduates Selected for Promotion to Colonel - 2004/5.

Thirty-five percent of the medical corps officers selected for promotion to Colonel (0-6) were USU SOM graduates. During February of 2005, the Army Medical Corps announced that 85 medical corps officers had been designated for 0-6. Thirty of those selected were USU SOM alumni.

USU Navy Captain Promotion Selectees - 2004.

The Navy released the promotion list for Captain (O-6) Medical Corps during the first quarter of 2004. There were 197 physicians considered for promotion to O-6 in or above zone. Of those, 21 were USU alumni; 176 were non-USU alumni. Overall, 28 physicians were selected for promotion. Of the 21 USU alumni considered for promotion in or above zone, 6 were selected, resulting in a 28.6 percent selection rate. Of the 176 non-USU alumni considered for promotion, 20 were selected in or above zone, resulting in a 11.4 percent selection rate. Again, USU graduates were selected at a rate higher than their peers. Two officers were selected for below zone promotions; one of those two was a USU alumnus.

USU Air Force Graduates Selected for Promotion to Colonel - 2004.

During late 2004, 45 Lieutenant Colonels were selected for promotion to Colonel (0-6). Of the 45 selected for promotion, 17 were USU alumni from the USU SOM Classes of 1988, 1989, 1990; USU SOM alumni represented 38 percent of those selected for promotion in the United States Air Force. Two officers were selected for below zone promotions; one of those two was a USU alumnus.

United States Public Health Service Graduate Selected for Promotion to Captain - 2004/5.

The U.S. Public Health Service selected **Michael C. Engel, USU SOM Class of 1990, for promotion to 0-6. Dr. Engel received an Exception Proficiency Promotion**, which is an accelerated promotion awarded to an individual who possesses exceptional capabilities and is performing in an assignment above his current grade.

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USU SOM Graduates Hold Leadership Roles and Earn Special Recognition throughout the Uniformed Services - Selected Examples from the USU SOM Alumni.

Class of 1980.

CAPT Sandra Yerkes, MC, USN, serves as the **Deputy Chief of the Navy Medical Corps**, assigned to the Navy Bureau of Medicine and Surgery (BUMED) in Washington, D.C. CAPT Yerkes is currently the last member of the SOM Charter Class who remains on active duty; she was recognized during the May 2004 USU SOM graduation ceremonies.

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Class of 1981.

CAPT Myron D. Almond, MC, USN, retired from the Navy in July of 2004; he is currently employed by the Lakeview Center, in Pensacola, Florida.

Colonel Naomi Aronson, MC, USA, is currently a billeted, full-time faculty member of the USU SOM Department of Medicine; she also serves as the **Director of the Leishmaniasis Treatment Center at the Walter Reed Army Medical Center**.

Colonel Donald Bradshaw, MC, USA, serves as the **Commander, Southeast Regional Medical Command/Eisenhower Army Medical Center,** at Fort Gordon, Georgia. ***Colonel Bradshaw was recently nominated for promotion to Brigadier General***.

Brigadier General C. William Fox, Jr., MC, USA, serves as the **Commanding General, Brooke Army Medical Center, Great Plains Regional Medical Command**, Fort Sam Houston, Texas. BG Fox is USU's second alumnus to achieve flag rank behind Rear Admiral E. Connie Mariano, MC, USN (Retired), USU SOM Class of 1981 (*BG Fox is currently in the process of retiring from active duty*).

Colonel Kevin Keenan, MC, USA, serves as the **Dean of the Joint Special Operations Medical Training Center at Fort Bragg, North Carolina.**

Colonel Deborah Kretzschmar, USAF, MC, serves as the **Commander, 3rd Medical Group, Elmendorf Air Force Base, Alaska**.

Colonel Michael Lischak, USAF, MC, retired from the Air Force during 2004. He is the Medical Director for Corporate WORx, the Occupational Medicine Division of Columbia St. Mary's, in Milwaukee, Wisconsin.

CAPT David Wade, MC, USN, is serving as the **Commander, Naval Medical Clinic, Patuxent River, Maryland**.

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Class of 1982.

CAPT Dean A. Bailey, MC, USN, is currently the **Officer-in-Charge, Navy Environmental and Preventive Medicine Unit-5, Naval Station, San Diego, California.**

Colonel David Burris, MC, USA, FACS, DMCC, has served as the **Interim Chair of the USU School of Medicine Department of Surgery since October of 2002**. Colonel Burris completed his general surgery residency at the Walter Reed Army Medical Center, has his Critical Care Certification, and is the Military Region XIII Chief for the Advanced Trauma Life Support (ATLS) Subcommittee of the Committee on Trauma of the American College of Surgeons. In that position, Colonel Burris is responsible for all ATLS programs within the Department of Defense. *During March of 2002, Colonel Burris reported that USU is one of three universities in the country permitted to teach the ATLS Course without using animals.* The American College of Surgeons allowed testing a non-animal model program for the teaching of ATLS; and, the USU President and Dean, SOM, approved the use of non-animal simulators in the Courses at USU. During 2003, Colonel Burris was deployed to Iraq and has since returned to USU.

Colonel Don J. Daniels, MC, USA, retired in March of 2005; he served as a faculty member of the Anesthesia Service at the Brooke Army Medical Center, Fort Sam Houston, Texas.

Brigadier General William Germann, USAF, MC, is USU's third alumnus to achieve flag rank behind Brigadier General William Fox, MC, USA, USU SOM Class of 1981, and Rear Admiral E. Connie Mariano, MC, USN (Retired), USU SOM Class of 1981. **Brigadier General Germann has been serving as the Commander of the 89th Medical Group (Malcolm Grow USAF Medical Center), Andrews Air Force Base, Maryland, since June of 2003**. In September of 2005, he will become the Command Surgeon for the United States Air Force Materiel Command, Wright-Patterson Air Force Base, with oversight responsibility for nine Air Force Medical Treatment Facilities.

CAPT Oleh Haluszka, MC, USN (Retired), is the Director of Gastrointestinal Endoscopy at the Fox Chase Cancer Center, in Philadelphia, Pennsylvania.

Colonel George Johnson, USAF, MC, is serving as the **Deputy Commander, David Grant United States Air Force Medical Center, Travis Air Force Base, California**.

Colonel William P. Madigan, MC, USA, recently retired from the Army. He served as the Chief of Ophthalmology at the Walter Reed Army Medical Center, the Army's Consultant to the Surgeon General for Ophthalmology, USU SOM Ophthalmology Division, and the architect of the Army's Laser Refractive Surgery Program. Through the Army's Military Refractive Readiness Program, directed by Colonel Madigan, a soldier's vision can be dramatically improved, enabling him to better perform his duties and improve his survivability on the battlefield. It is estimated that one-third to one-half of soldiers on active duty require some form of optical correction. Since the first laser eye surgery was performed in January of 2002, over 1,000 patients have been treated. Dr. Madigan is now in the Department of Ophthalmology at the Children's National Medical Center, in Washington, D.C.

Colonel Richard L. Marple, MC, USA, is serving as the **Deputy Commander for Clinical Services for the U.S. Army Medical Activity, Heidelberg, Germany.**

CAPT Peter Martin, MC, USN, retired from the Navy during 2004; he is now on staff in the Head and Neck Surgery Department of the Kaiser Permanente Medical Center, in San Diego, California.

Colonel David T. Orman, MC, USA, is assigned to the **Department of Psychiatry at the Tripler Army Medical Center, in Hawaii**.

Colonel Lawrence Riddles, USAF, MC, is serving as the **Commander of the 375th Medical Group, Scott Air Force Base, Illinois**.

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Class of 1983.

CAPT Michael Anderson, MC, USA, is the **Commanding Officer, Naval Hospital, Great Lakes, Illinois**.

Colonel James Bruckart, MC, USA, is serving as the **Command Surgeon, United States Army III Corps, Fort Hood, Texas**.

Colonel Joseph Caravalho, MC, USA, is serving as the **Commander, 44th Medical Brigade (rear)(provisional), Fort Bragg, North Carolina.**

Colonel Cliff Cloonan, MC, USA (Ret.), served as the Interim Chair of the Department of Military and Emergency Medicine at the USU SOM through June of 2003. Colonel Cloonan was assigned to USU in July of 2000, where he served as the Vice-Chair of the Department until August of 2001, when Craig Llewellyn, M.D., Colonel, USA (Retired), stepped down as the Department Chair of Military and Emergency Medicine. Colonel Cloonan had previously served as the Dean of the Joint Special Operations Medical Training Center at Fort Bragg, North Carolina, for three and one half years. From 1990 through 1993, Colonel Cloonan served in the USU SOM Department of Military and Emergency Medicine as an Assistant Professor; he was also the Course Director for both the *Combat Medical Skills Course* and the *Introduction to Combat Casualty Care Course*. In addition to serving as Interim Chair, Colonel Cloonan also served as the Emergency Medicine Specialty Consultant to the Army Surgeon General; following a distinguished career, Colonel Cloonan retired from active duty, during 2004.

CAPT Jonathan Cutting, MC, USA, is serving as the **Commanding Officer, United States Naval Hospital, Rota, Spain**.

Colonel Warner "Rocky" Farr, MC, USA, serves as the **Command Surgeon for the United States Army Special Operations Command at Fort Bragg**, **North Carolina.**

Colonel Bradley Harper, MC, USA, relocated, during 2004, from Puerto Rico to San Antonio, Texas, with the Army's Southern Command as the Command Surgeon. His current assignment is **Commander, United States Army Health Clinic, Vincenza, Italy**.

Colonel Bob Lyons, MC, USA, served as the **Deputy Commander for the United States Army 21st Combat Support Hospital** during 2004; he was featured by the Public Broadcasting Service (PBS)

program, *NOVA: Life and Death in a Combat Zone*, on March 2, 2004. Colonel Lyons participated in the creation of a state-of-the-art hospital in tents on the outskirts of Baghdad, Iraq.

Colonel John McCafferty, USAF, MC, is serving as the **Commander, 71st Medical Group, Vance Air Force Base, Oklahoma**.

CAPT John Perciballi, MC, USN, was recognized by the television media and the National press as a member of the Devil Docs in Iraq and for his skills outside of the operating room (*Devil Doc Trades Desert Surgeries for Tactics of U.S. Military Chess Team*) on September 8, 2003, due to his competition in the NATO Chess Championship in Copenhagen, Denmark; he is currently serving as a General Surgeon stationed out of the Naval Hospital, in Pensacola, Florida.

CAPT Glen Schnepf, MC, USN, has been selected to serve as the United States **Navy Liaison with the World Health Organization,** in Switzerland.

Colonel Michael Spatz, USAF, MC, is serving as the **Deputy Assistant Surgeon General for Medical Force Development, Medical Corps Director, and Chief, Air Force Medical Service Education and Training, Office of the Air Force Surgeon General**. Colonel Spatz oversees all force development for the medical corps, to include medical student training and scholarships, graduate medical education, promotions, assignments, special pays, recruiting and retention, as well as all education and training for the Air Force Medical Service.

CAPT Kevin Yeskey, M.D., USPHS (Ret.), FACEP, Associate Professor, Department of Military and Emergency Medicine, Board Certified in Emergency Medicine, Director, USU Center for Disaster and Humanitarian Assistance Medicine (CDHAM), served during 2001 as the Director of the Bioterrorism Preparedness and Response Program for the Centers for Disease Control (CDC) in Atlanta, Georgia. CAPT Yeskey was named as the Acting Director of the program on August 20, 2001; and, he was selected as the Director on December 1, 2001. As the Director, he was charged with enhancing CDC's capacities to assist States and other partners in responding to bioterrorism. In addition to infectious disease concerns, other CDC efforts under this program included consideration for chemical terrorism, a National Pharmaceutical Stockpile, and National Lab Enhancement. During 2002, CAPT Yeskey served as the Director, Office of Emergency Response, in the newly established Department of Homeland Security, followed by a brief assignment with the Federal Emergency Management Agency (FEMA), until his retirement, in 2004. **Dr. Yeskey currently serves as the Director of the USU Center for Disaster and Humanitarian Assistance Medicine, in the Department of Military and Emergency Medicine**.

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<u>Class of 1984.</u>

Colonel Charles Beadling, USAF, MC, previously served as the Commander of the 375th Medical Group, Scott Air Force Base, Illinois, during 2003. **Colonel Beadling is currently serving as the Interim Chair of the USU SOM Department of Military and Emergency Medicine**.

Colonel Sharon Harris, MC, USN, retired from the Navy during 2004; she is currently a Staff Endocrinologist with the Quincy Medical Group, in Quincy, Illinois.

CAPT Michael Holtel, MC, USN, serves as the Otolaryngology Department Chair and Residency Program Director at the Tripler Army Medical Center.

CAPT Sandra Kweder, M.D., USPHS, Associate Professor, USU SOM Department of Medicine, serves as the **Deputy Director of the Food and Drug Administration's Office of New Drugs**. CAPT Kweder's previous assignments included serving as Deputy Director of the Office of Drug Evaluation IV, Co-Chair of FDA's Pregnancy Labeling Taskforce, Acting Director of the Office of Review Management, and Acting Director of the Office of Drug Evaluation II.

CAPT Diane Mitchell, M.D., USPHS, serves as the **Deputy Director for a large division at the Center for Devices and Radiological Health, Regulatory Affairs for Reproductive Devices, at the Food and Drug Administration**.

Colonel Kent Murphy, USAF, MC, was recognized by U.S. Medicine, a medical news organization, for his pioneering work in information therapy. **Colonel Murphy, founder of the Air Force Academy's Center of Excellence for Medical Multimedia in 1998, was awarded the Frank Brown Berry Prize in Federal Healthcare**. His influence is far reaching in the military medical world, with the most significant impact branching from his work with the Academy Center. The concept behind the Air Force Academy Center is that information technology can empower patients by educating them on medical techniques. The Center uses high-level cinemagraphic technology to create multimedia programs. The programs cover an array of medical topics including pregnancy, diabetes, early detection of colon cancer, suicide prevention, and outpatient surgical procedures. The Center uses animation to make the topics interesting and utilizes technology found in movies to inform patients from underserved populations.

CAPT Chris Osgood, MC, USN, retired from the Navy in 2004; he is currently an Orthopaedic Surgeon with Group Health, in Tacoma, Washington.

Colonel Terry Walters, MC, USA, serves as the **Brigade Commander of the 1st Medical Brigade at Fort Hood, Texas**. Colonel Walters is also a graduate of the Master of Public Health Program at USU; she was recently featured in the Killeen (Texas) Daily News, *Former Immigrant Lives American Dream*, on February 23, 2004.

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Class of 1985.

Colonel Mark Bagg, MC, USA, serves as the **Chief of Orthopaedic Surgery at the Brooke Army Medical Center**; he was featured in an interview for the McNeil-Lehrer Hour, *Healing the Wounds*, on December 3, 2003, for his service in addressing the traumatic orthopaedic injuries of soldiers wounded in Iraq.

Commander Margaret Bash, M.D., USPHS, is currently conducting bacterial vaccine research and development in a joint program through the Food and Drug Administration and the National Institutes of Health.

CAPT Hans Brings, MC, USN, is a Vascular Surgeon who was attached to the Navy's Fleet Hospital Three (FH-3), the first expeditionary medical facility assigned to a war zone. CAPT Brings, who is stationed at the National Naval Medical Center in Bethesda, Maryland, was among a team of 300 health care providers and construction battalion personnel deployed to Iraq with the Pensacola, Florida-based fleet hospital. The 9-acre, 116-bed facility is designed to provide treatment in the field to those who risk their lives on the battlefield. FH-3 went to Iraq with 166 trucking containers filled with more than $12 million in medical equipment and supplies.

CAPT Robert Darling, MC, USN, is currently the **Director, Navy Medicine Office of Homeland Security**. "Fighting terrorism is the single most important objective to ensure our national defense, and we need our very best talent dedicated to the cause. CAPT Rob Darling is our most highly qualified expert and will guide us well" (from remarks by Rear Admiral Donald C. Arthur, Deputy Surgeon General of the Navy and Chief of the Medical Corps). During 1996, when the White House was looking for a new White House Physician, a post generally filled by internists, surgeons, or family physicians, CAPT Darling was the first Emergency Physician to be selected for the assignment. While at the White House, CAPT Darling assisted the Secret Service to better understand the threat of a biological attack from a medical perspective.

Colonel Loren Erickson, MC, USA, serves as the **Commander of the United States Army Center for Health Promotion and Preventive Medicine-Europe.**

Colonel Bryan Funke, USAF, MC, is the **Commander of the 35th Medical Group, Misawa Air Base, Japan;** he is also serving as the **Central Air Forces Forward Surgeon in the Middle East**.

CAPT Noreen Hynes, M.D., USPHS, is currently working with the Food and Drug Administration on bioterrorism issues. CAPT Hynes' expertise is in international health, microbes of global and terrorism significance, and associated vaccine development.

Colonel Doug Liening, MC, USA, served as the **Commander for the 21st Combat Support Hospital in Iraq** during 2004; he was featured by the Wall Street Journal, *In a Tent Hospital*, on October 29, 2003, for his exceptional service; in addition, he was also featured by the London Times, *Move Over Mash - This Is Hi-Tech CASH*, on November 15, 2003. He returned from Operation Iraqi Freedom in late 2004.

Colonel Shirley Lockie, USAF, MC, retired from the Air Force in 2004; she served as the Chief of the Medical Staff at the 66th Medical Group, Hanscom Air Force Base, Massachusetts.

CAPT Eric McDonald, MC, USN, returned from an eight-month deployment to Fallujah, Iraq, in 2004. He is the **Force Surgeon for the 1st Marine Expeditionary Force** based at Camp Pendleton, California.

CAPT Michael Moeller, MC, USN, is the **Group Surgeon, 2D Force Service Support Group Forward, Al Taqaddum, Iraq**.

Colonel Sean Murphy, USAF, MC, serves as the **Command Surgeon for the United States Southern Command, at Miami, Florida.**

Colonel Koji Nishimura, MC, USA, is serving as the **Commander, Bassett Army Community Hospital, Fort Wainwright, Arkansas**.

Colonel Don Richards, MC, USA, serves as the **Commander of the 115th Field Hospital** based out of Fort Polk, Louisiana; his unit was deployed to Iraq, during 2004.

Commander Tom Snead, MC, USN, serves as the **Officer-in-Charge of the Branch Medical Clinic at the Naval Base, Ingleside, Texas.**

Colonel Don Speers, MC, USA, serves as the **Commander of the Patterson Army Community Hospital at Fort Monmouth, New Jersey**.

Colonel Harry Stinger, MC, USA, served as the **Commander of the 250th Forward Surgical Team in Iraq,** during 2004. He is now a faculty member in the USU Department of Surgery.

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Class of 1986.

Colonel Kory Cornum, USAF, MC, served as the **Commander of the Medical Operations Squadron at Ramstein Air Base, Germany**. He is currently the Commander, 1st Medical Group, Langley Air Force Base, Virginia.

Colonel Rhonda Cornum, MC, USA, served as the **Commander of the Landstuhl Regional Medical Center in Landstuhl, Germany**; this medical center is the largest United States Medical Treatment Facility in Europe. She recently transferred to Fort McPherson, Georgia, where **she is serving as the United State Forces Command (FORSCOM) Surgeon**.

Colonel John V. Ingari, MC, USAF, is serving as the **Orthopaedic Program Director at the Tripler Army Medical Center in Honolulu, Hawaii.**

Colonel Alan Janusziewicz, MC, USA, is the **Command Surgeon, United States Army Materiel Command, Fort Belvoir, Virginia**.

Colonel Andrew Satin, USAF, MC, following a national search, was selected to serve as the **Chair of the USU SOM Department of Obstetrics and Gynecology,** effective September 8, 2003. Previously, he served as the Director of the Uniformed Services Residency in Obstetrics and Gynecology and as the Vice Chair of the USU SOM Department of Obstetrics and Gynecology. Under Colonel Satin's leadership, the residency program was granted the maximum five-year accreditation by the Obstetrics and Gynecology (OBG) Residency Review Committee of the Accreditation Council for Graduate Medical Education. The residency program is the first in OBG to move from provisional status as a newly integrated program directly to the maximum accreditation of five years. Of the more than 250 OBG residency programs in the United States, only nine have achieved the five-year maximum accreditation.

Colonel Steven Swann, MC, USA, is currently serving as the **Commander, 30th Medical Brigade, Germany**. He was previously assigned as the Commander, Baynes Jones Army Community Hospital, Fort Polk, Louisiana.

Brigadier General Thomas Travis, USAF, MC, is serving as the **Commander of the 311th Human Systems Wing at Brooks City-Base, Texas**. BG Travis is the fourth USU alumnus to achieve flag

rank behind Brigadier General William Germann, USAF, MC, USU SOM Class of 1982; Brigadier General G William Fox, MC, USA, USU SOM Class of 1981; and, Rear Admiral E. Connie Mariano, MC, USN (Retired), USU SOM Class of 1981. He will replace Brigadier General Bill Germann as the Commander of the Malcolm Grow United States Air Force Medical Center at Andrews Air Force Base, Maryland, in September of 2005.

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Class of 1987.

Colonel William Davis, MC, USA, is serving as the **Commander, Munson Army Health Center, Fort Leavenworth, Kansas**.

CAPT Tom Grieger, MC, USN, Associate Professor, USU SOM Department of Psychiatry, was in charge of the Navy Special Psychiatric Rapid Intervention (SPRINT) Team helping out at the Pentagon and the Navy Annex following the terrorist attacks on September 11, 2001. The team provided supportive services to 2,000 active duty and civilian employees on the Navy staff. CAPT Grieger continues to provide significant support as a **senior member of the USU Center for the Study of Traumatic Stress** in the USU SOM Department of Psychiatry.

Colonel Byron Hepburn, USAF, MC, served as the Command Surgeon of the United States European Command in Stuttgart, Germany; he is currently the **Commander, David Grant United States Air Force Medical Center, Travis Air Force Base, California**.

Colonel Dallas Homas, MC, USA, board certified in General Surgery, Plastic Surgery, and Hand Surgery, served in Afghanistan as part of Operation Enduring Freedom, during 2004, as the **Combined Joint Task Force-76 Command Surgeon**. He currently serves as the **Commander, United States Army Hospital, Wurzburg, Germany**.

Colonel Timothy Jex, USAF, MC, is serving as the **United States Central Air Force (USCENTAF) Command Surgeon, based at Shaw Air Force Base, South Carolina**. Colonel Jex is responsible for the medical planning at USCENTAF. He also manages medical war readiness materials for the USCENTAF, provides supervision, establishes policy, works logistics issues for all of the deployed medical units, handles all medical issues for the Central Air Force Combat Command, and generally provides leadership for all of the deployed medical personnel.

Colonel William Lang, MC, USA, serves in the **White House Medical Unit**; this is his second tour of duty on the Presidential Medical Staff.

Lieutenant Colonel Edward Lucci, MC, USA, is the **Chief of Emergency and Operational Medicine at the Walter Reed Army Medical Center (WRAMC)**. On staff at WRAMC since 1997, Lucci serves as the hospital's team leader for the special response team for chemical and biological events.

Lieutenant Colonel Paul Mongan, MC, USA, is serving as the **Chair of the USU SOM Department of Anesthesiology**. *He is the first medical school alumnus to become a Chair of a clinical*

department at the University. Lieutenant Colonel Mongan has been an Anesthesiology faculty member since 1997, serving as Director of Research and Associate Professor, and for four years as Vice Chair.

Colonel John Powell, MC, USA, is currently serving as the **Deputy Command Surgeon for the United States Northern Command (NORTHCOM),** at Peterson Air Force Base, Colorado.

Colonel Patrick St. Pierre, MC, USA, was chosen, during 2003, for a medical exchange fellowship program. **Colonel St. Pierre, Assistant-Chief of Orthopaedic Surgery at the DeWitt Army Hospital at Fort Belvoir, Virginia,** is the first military physician selected as winner of the 2003 American Shoulder and Elbow Surgeon's (ASES) Traveling Fellow Post. The ASES is a society of leading national and international orthopaedic surgeons specializing in surgery of the shoulder and elbow. The society is an educational body responsible for the development of scientific programs, for the organization of current knowledge, for the standardization of nomenclature, and for the publication of scientific materials. Each year, the ASES, along with their international counterparts, alternate choosing two Fellows to travel to their respective continents to confer with shoulder specialists and other Fellows. Colonel St. Pierre will make about 10 to 15 visits in countries such as Italy, Denmark, Germany, Switzerland, and France; he will participate in an average of three to five sessions at each location. Colonel St. Pierre's research has won awards from the Eastern Orthopaedic Association, the Walter Reed Army Institute of Research, the Society of Military Orthopaedic Surgeons, the Arthroscopy Association of North America, and the American Orthopaedic Society for Sports Medicine.

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Class of 1988.

Colonel John Cho, MC, USA, is serving as the **Commander, Evans Army Community Hospital, Fort Carson, Colorado**.

Lieutenant Colonel Michael C. Edwards, USAF, MC, FACS, held dual positions as **Chief of Surgical Services and Chief of the Professional Staff at the 99th Medical Group, Mike O'Callaghan Federal Hospital, Nellis Air Force Base, Nevada**, during 2004.

CAPT Anderson Funke, M.D., USPHS (Ret.), served as the **Medical Director of the Carolina Health Centers in Greenwood, South Carolina,** during 2004.

Lieutenant Colonel Roman Hayda, MC, USA, served as an **Orthopaedic Trauma Surgeon at the Brooke Army Medical Center,** during 2004; he was featured in an interview for the McNeil-Lehrer Hour, *Healing the Wounds*, on December 3, 2003, for his service caring for soldiers injured in Iraq.

Colonel Lewis Hofmann, USAF, MC, is serving on the **Presidential Medical Team, White House Medical Office, Washington, D.C.**

Lieutenant Colonel Lester "Andy" Huff, USAF, MC, is serving as the **Command Surgeon, 1st Air Force, Tyndall Air Force Base, Florida.**

CAPT David Tam, MC, USN, a Pediatric Neurologist, was selected to serve as the **Deputy Commander for the Naval Medical Center in San Diego, California,** in July of 2005.

Colonel Peter Torok, MC, USA, is serving as the **Commander, Keller Army Community Hospital, West Point, New York.**

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Class of 1989.

Colonel John Baxter, USAF (Ret.), MC, continues to serve as the **Director, Pentagon Flight Medicine Clinic,** following his retirement in 2004; **he also serves as the physician to the Secretary of Defense**. Several months prior to the terrorist attack, Colonel Baxter's clinic had conducted mass casualty training exercises in conjunction with the Pentagon DiLorenzo Clinic. The exercise simulated a plane crashing into the building; on September 11th, members of both health care facilities agreed that the simulated training had proven to be invaluable.

Lieutenant Colonel Aldo Domenichini, MC, USAF, is currently assigned to the Family Medicine Department at the Air Force Hospital, Eglin Air Force Base, Florida.

Two Members of the USU SOM Class of 1989, Lieutenant Colonel Duane Cespedes, USAF, MC, and **Lieutenant Colonel David Ririe, USAF, MC,** assigned to the Wilford Hall United States Air Force Medical Center at Lackland Air Force Base, Texas, during 2004, are playing a significant role in the battle against prostate cancer. In an article produced by the 59th Medical Wing Public Affairs Office, Lieutenant Colonels Cespedes and Ririe were cited as instrumental members of a team of researchers who were involved in a highly publicized, landmark study on the drug, Finasteride's (Proscar) ability to prevent prostate cancer. According to the article, Wilford Hall was the largest site, providing roughly 10 percent of the participant population, for this extensive seven-year nation-wide study, named the Prostate Cancer Prevention Trial. The trail has found a 25 percent reduction in prostate cancer occurrences for healthy males taking the drug. Findings were published in the July 17, 2003 edition of The New England Journal of Medicine.

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Class of 1990.

Lieutenant Colonel Kirk Eggleston, MC, USA, served as the **Division Surgeon for the 4th Infantry Division (mechanized) in Iraq,** during 2004.

Lieutenant Colonel Bill Flynn, USAF, MC, serves as the **Ophthalmology Residency Program Director at the Wilford Hall United States Air Force Medical Center, Lackland Air Force Base, Texas,** during 2004; he was featured by the 409th Air Expeditionary Group Public Affairs Office, on September 17, 2003, for his efforts in a multi-national humanitarian assistance exercise, which took place in the Republic of Georgia.

Lieutenant Colonel Spencer J. Frink, USAF, MC, recently completed his Fellowship in Orthopaedic Oncology at the M.D. Anderson Cancer Center and is **one of only two Orthopaedic**

Oncologists in the Air Force. He is assigned at the Wilford Hall Medical Center at Lackland Air Force Base, Texas.

Lieutenant Colonel John McGrath, MC, USA, served as the **Division Surgeon for the 1st Armored Division in Iraq,** during 2004. He is currently the **Commander of the United States Army Health Clinic, in Wiesbaden, Germany**.

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Class of 1991.

Commander Kevin K. Bach, MC, USN, served as the **Command Intern Advisor in the Department of Otolaryngology at the Naval Medical Center in San Diego, California,** during 2004.

Commander Katy Ciacco-Palatianos, M.D., USPHS, holds an increasingly important headquarters position as the Principal Risk Management Consultant. **She represents the Indian Health Service (IHS) at Health and Human Services (HHS) and at interdepartmental meetings involving quality of care, patient safety, and workforce safety and health.** She is currently representing the IHS on the USPHS Physician PAC and a variety of departmental functions. She served as the Chair of the Medical Claims Quality Review Panel for HHS for six years and worked closely with the Office of the General Counsel and Department of Justice attorneys in analyzing and defending claims of negligence at Federal facilities and their providers; she also serves as a Member of the USPHS Commissioned Corps Award Branch.

Commander David Lane, MC, USN, serves as the **Group Surgeon for the Third Force Service Support Group, Okinawa, Japan**.

CAPT Karen Parko, M.D., USPHS, was one of only 18 PHS Commissioned Corps officers selected for an Exceptional Capability Promotion. She assumed the rank of Captain (0-6) on July 1, 2002. CAPT Parko, due to her assignment as the Director, Neurological Services, at the Northern Navajo Medical Center in Shiprock, New Mexico, was also selected by U.S. Medicine, a medical news organization, as one of the 10 top finalists for the Frank Brown Berry Prize in Federal Healthcare during 2003. She transferred to the Neurology and Rehab Service at the San Francisco Veteran's Administration Medical Center in California, where she is also serving as the **Chief Clinical Consultant in Neurology for the Navajo Area Indian Health Service**.

Lieutenant Colonel Paul Pasquina, MC, USA, served as the **Program Director for the Physical Medicine and Rehabilitation Residency at the Walter Reed Army Medical Center,** during 2004. As Program Director, Lieutenant Colonel Pasquina led the department through a successful residency review by the Accreditation Council for Graduate Medical Education (ACGME).

Lieutenant Colonel Mike Place, MC, USA, served as the **Division Surgeon for the 101st Airborne Division in Iraq,** during 2004.

Colonel William Rice, MC, USA, is serving as the **Commander, Kirk United States Army Health Clinic, Aberdeen Proving Ground, Maryland.**

Commander Jay Scheiner, MC, USN, is serving on the **Presidential Medical Team, White House Medical Office, Washington, D.C.**

Commander S. Scott Sherman, MC, USN, is serving as the **Group Surgeon, 1st Force Service Support Group, Camp Pendleton, California**.

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Class of 1992.

Lieutenant Colonel Chester "Trip" Buckenmaier, MC, USA, was featured in the Army Times, *Pain Blocker - Regional Anesthesia Demonstrates Promises for Treating Combat Wounds*, in April of 2004. Lieutenant Colonel Buckenmaier, **Chief of the Regional Anesthesia and Pain Management Initiative at the Walter Reed Army Medical Center,** is researching the use of regional anesthesia as an alternative to the traditional battlefield pain stopper, morphine; he was also featured in the London Times, *Move Over MASH - This Is High-Tech CASH*, on November 15, 2003.

Commander Noel Delmundo, M.D., USPHS, was assigned as a **Staff Member in the Obstetrics and Gynecology Department at the Phoenix Indian Medical Center in Arizona,** during 2004.

Lieutenant Colonel Erin Edgar, MC, USA, continued the trend of USU alumni serving in operational positions, when he served as the **Division Surgeon for the 82nd Airborne Division at Fort Bragg, North Carolina,** during 2004. Lieutenant Colonel Edgar has been twice promoted below zone; he is currently serving as the **Commander, Academy Battalion, United States Army Medical Center and School, Fort Sam Houston, Texas**.

Lieutenant Colonel Blake Graham, MC, USA, served as the **Regimental Surgeon for the 3rd Armored Cavalry Regiment in Iraq,** during 2004.

Lieutenant Colonel Nelson Hager, MC, USA, serves as the **Chief of the Physical Medicine and Rehabilitation Service at the Walter Reed Army Medical Center, in Washington, D.C.**

Lieutenant Colonel Mark Koeniger, USAF, MC, recipient of the Malcolm Grow Award for Air Force Flight Surgeon of the Year in 1998, served as the Commander of the 86th Aeromedical Squadron at the Ramstein Air Base in Germany, during 2003. He was selected to serve as a **Staff Member at the Industrial College of the Armed Forces (ICAF),** during 2004.

Lieutenant Colonel Kelly Murray, MC, USA, served as the **Regimental Surgeon for the 2nd Armored Cavalry Regiment in Iraq,** during 2004.

Lieutenant Commander John Newman, MC, USN, assigned to the USS Iwo Jima, was featured in the New York Times, *Medical Teams Fight Outbreak of Malaria Among Marines*, on September 16, 2003; the USU Parasitology and Tropical Medicine Courses, attended by Lieutenant Commander Newman, are referenced as the article explains how **the outbreak was diagnosed by Lieutenant Commander Newman**.

Lieutenant Colonel Dan Parks, MC, USA, is serving on the **Presidential Medical Team, White House Medical Office, Washington, D.C.**

Commander Mary Porvaznik, M.D., USPHS, served as the **Chief of Family Medicine at the Northern Navajo Medical Center in Shiprock, New Mexico,** during 2004. She supervised a department of 13 physicians who provide primary care in the Medical Center and in several community clinics outside of the Center. Besides a busy out-patient clinic, Commander Porvaznik's department also ran a busy in-patient adult and pediatric service, including an intensive care unit and full obstetrical services. Commander Porvaznik was born in the Indian Health Service Hospital in Tuba City, Arizona; her father was a physician who also served the Native American population. Commander Porvaznik's father, who completed 30 years in the Public Health Service and retired as an Assistant Surgeon General and Rear Admiral, suggested that she apply to USU. ***Commander Porvaznik reported that the intense training she received at the USU SOM was outstanding and the summer field training sessions were incredibly useful***.

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Class of 1993.

Lieutenant Commander Tanis Batsel, MC, USN, who also earned a Master Degree in Public Health from USU in 2000, is now assigned as the **Chief of the Preventive Medicine Branch for the United States Northern Command (NORTHCOM) and the North American Aerospace Defense Command (NORAD),** at Peterson Air Force Base, Colorado.

Commander Kimberly (Clancy) Brownell, M.D., USPHS, served as a **Staff Pediatrician at the Northern Navajo Medical Center in Shiprock, New Mexico,** during 2004.

Major Brian Crownover, USAF, MC, was featured on the Air Force News Link, *Balad* (Iraq) *Medics Aid Villagers*, on January 7, 2004; he recently returned from serving as the **Chief of Clinical Services for the 332nd Expeditionary Medical Squadron, Detachment 1, in Balad, Iraq**.

Commander Jeffrey Curtis, M.D., USPHS, is a **Staff Physician in the Medicine/Family Practice Department at the Phoenix Indian Medical Center, in Arizona**.

Lieutenant Colonel Jim Czarnik, MC, USA, a board certified Emergency Physician assigned to Fort Bragg, North Carolina, served in Afghanistan as part of Operation Enduring Freedom, during 2004, as the **Combined Joint Special Operations Task Force-Afghanistan Surgeon**.

Lieutenant Colonel Marie Dominguez, MC, USA, served as the **Commander of the United States Army Health Clinic at Darmstadt, Germany,** during 2004.

Major Kerry Jepsen, USAF, MC, an Orthopaedic Surgeon at Landstuhl Regional Medical Center, Germany, cares for injured troops from Iraq and Afghanistan.

Lieutenant Colonel James Liffrig, MC, USA, serves as the **Division Surgeon, 24th Infantry Division, Fort Riley, Kansas**.

Lieutenant Colonel Jose Ortiz, MC, USA, is the **Command Surgeon, United States Army Operations Support Command, Rock Island Arsenal, Illinois.**

Major George Patterson, MC, USA, is the **Chief of the Community Care Center at the Eisenhower Army Medical Center, Fort Gordon, Georgia**.

Major Grant Tibbetts, USAF, MC, was assigned as the **Chief of Special Imaging at the 3rd Medical Group, Elmendorf Air Force Base, Alaska,** during 2004.

Lieutenant Colonel Richard Trotta, MC, USA, is assigned as the **Southern European Task Force Surgeon, NATO**; he is currently serving in Afghanistan.

Commander Brent Warren, USPHS, M.D., is an **Ophthalmologist and an Assistant Professor of Surgery at USU**. He helped to establish the state-of-the-art Refractive Eye Surgery Clinic at the Walter Reed Army Medical Center in Washington, D.C., and has performed hundreds of laser vision corrective surgeries on soldiers identified for combat.

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Class of 1994.

Lieutenant Colonel David Barber, MC, USA, currently serving in Afghanistan, was featured in an article in the Washington Times, *Sick Afghan Boy on Way to US for Vital Operation*, on June 13, 2005.

Lieutenant Commander Ronald Boucher, MC, USN, is assigned to the Naval Medical Center in San Diego, California, where he works as a Musculo-Skeletal Radiologist.

Major Richard Gullick, MC, USA, is a **Neurosurgeon based at the Brooke Army Medical Center; he was deployed to Iraq as part of the 31st Combat Support Hospital** and was featured in The Washington Post, *Lasting Wounds of War - Roadside Bombs Have Devastated Troops*, on April 27, 2004.

Major Thomas Herold, MC, USA, completed his residency in **Emergency Medicine** and is now a Staff Member at the Darnall Army Community Hospital, Fort Hood, Texas.

Lieutenant Commander Staci (Valenzuela) Kelley, MC, USN, served as the **Head of the Inpatient Mental Health Division of the Naval Hospital located at Great Lakes, Illinois**, during 2004.

Lieutenant Commander David P. Murphy, MC, USN, Head of the Pulmonary/Critical Care Unit, United States Naval Hospital Okinawa, received the Sparks Award for Excellence at the Navy Chapter's annual meeting in Washington, D.C., in November of 2003; this award recognizes him as the top internist in the Navy by the American College of Physicians, United States Navy Chapter.

Major Donovan Tapper, USAF, MC, served as the **Chief of Surgical Specialties at the 6th Medical Group, MacDill Air Force Base, Florida**; he was deployed as part of the 332nd Expeditionary Medical Group at Tallil Air Base, Iraq, and was featured on the United States Air Force News Link, *Medical Team Helps Accident Victims*, on January 12, 2004.

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Class of 1995.

Major Jeffrey Blue, MC, USA, completed his **Emergency Medicine** Residency at the Brooke Army Medical Center and is now assigned as the **Group Surgeon, 7th Special Forces, Fort Bragg, North Carolina**.

Commander Christine Casey, M.D., USPHS, is now serving as an **Epidemiologist for the Centers for Disease Control and Prevention** and works in the National Immunization Program, which has a leading role in bioterrorism surveillance/prevention.

Major Scott Earwood, MC, USA, was based out of Fort Bragg, North Carolina, and deployed to Iraq; he was featured by the Washington Post, *Soldiers Say They Remain Committed*, on November 3, 2003.

Major Michael Koteles, USAF, MC, was named the **United States Air Force Clinical Excellence Field Grade Officer of the Year** by the Air Force Surgeon General, during 2004. Major Koteles is assigned to the 99th Medical Group, Nellis Air Force Base, Nevada, as the **Element Chief of the Medicine Department**.

Major Shean Phelps, MC, USA, served as the **Battalion Surgeon for the 1st Special Forces Battalion, 1st Special Forces Group, Panzer Kaserne, in Boeblingen, Germany,** during 2004.

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Class of 1996.

Captain Daniel Irizarry, MC, USA, served as the **Regimental Surgeon for the 325th Airborne Infantry Regiment, 82nd Airborne Division, at Fort Bragg, North Carolina,** during 2004, with duty in Iraq.

Major Gregory Kennebeck, USAF, MC, was recently deployed to Iraq from his position as an **Instructor for the Army Medical Department's Physician Assistant School at Fort Sam Houston, Texas**.

Lieutenant Commander John M. McCurley, MC, USN, an internist, served as a Staff Physician in the Office of the Attending Physician on Capital Hill. He is now a **Cardiologist and USU Faculty Member**.

Lieutenant Commander John Mohs, M.D., USPHS, was assigned to the Northern Navajo Medical Center in Shiprock, New Mexico, as the **Vice Chief of Family Medicine and the Director of the Family Medicine Health Clinic,** during 2004. He was responsible for scheduling, developing and maintaining practice guidelines, and for conducting performance improvement studies; there are 13 physicians and 10 nurses assigned to the clinic.

Lieutenant Commander Kimberly Mohs, M.D., USPHS, was assigned to the Northern Navajo Medical Center in Shiprock, New Mexico, as the **Chief of Internal Medicine**, during 2004. As such, she provided oversight for a department of six internists who provide primary care as well as cardiology and

pulmonary related procedures and endoscopy. Her department also held a number of specialty clinics, including hypertension, tuberculosis, renal disease, gastroenterology, and a uranium miners' clinic, which she also supervised. The Four Corners area has been a primary site for uranium mining over the years, and the clinic mainly treats patients with lung disease or other health problems resulting from exposure to uranium.

Major Edward Swanton, MC, USA, is the **Chief of the Out-Patient Psychiatry Clinic and a Staff Internist at the Landstuhl Regional Medical Center, Germany**.

Lieutenant Colonel Peter Weina, MC, USA, was featured in the Kansas City Star website, *Rare Parasite Infection Afflicts U.S. Troops in Iraq*. Weina was sent to Iraq with the first wave of soldiers in 2003 to assess endemic disease threats; he is currently a leishmaniasis expert serving at the Walter Reed Army Institute of Research. In the past two years, hundreds of soldiers in Iraq have been afflicted with cutaneous leishmaniasis; a few have been afflicted with visceral leishmaniasis, which is accompanied by a persistent, unexplained fever, and is fatal if not treated.

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Class of 1997.

Major Scott Brietzke, MC, USA, was featured in the Edmonton (Alberta, Canada) Journal, *Snore No More with Procedure Developed by Military Doctors*, on April 5, 2004. Major Brietzke, assigned to the Walter Reed Army Medical Center in Washington, D.C., has been developing and refining snorplasty with his colleague, Doctor Eric Mair. More than 200 patients have been treated with injection snorplasty at the center; the new procedure takes about ten minutes and is only recommended for disruptive snoring.

Major Kurt G. Kinney, MC, USA, is currently a **Staff Cardiologist at the William Beaumont Army Medical Center, in El Paso, Texas.**

Lieutenant Commander Susannah Q. Olnes, M.D., USPHS, is a Pediatrician at the W.W. Hastings Indian Medical Center in Tahlequah, Oklahoma, where she designed and implemented a Diabetes Prevention Program for at-risk teens (Trim Native Teens - TNT).

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Class of 1998.

Lieutenant Commander Ramiro Gutierrez, MC, USN, is serving on the **Congressional Medical Team, Office of the Attending Physician to Congress, Washington, D.C.**

Lieutenant Commander Robert Johnson, MC, USN, served as a Flight Surgeon assigned to VAQ-133 and the Naval Hospital in Oak Harbor, Washington. He continued in an **Ophthalmology Residency at the Naval Medical Center in San Diego, California,** during 2004.

Captain Jocelyn Kilgore, USAF, MC, served as a **Staff Psychiatrist in Germany,** during 2004.

Major Max Lee, USAF, MC, is usually assigned to the Wilford Hall United States Air Force Medical Center in San Antonio, Texas; **currently assigned to an Expeditionary Medical Unit in Iraq**, he was featured by Fox News, during May of 2005, on a segment on combat wounded and the health care providers who are taking care of them.

Lieutenant Commander David Lesser, MC, USN, served as a **Flight Surgeon with the Navy Helicopter Squadron HSL-41 in San Diego, California,** during 2004.

Lieutenant Commander Julia C. (Watkins) Meyers, M.D., USPHS, is currently working at the Wichita County Health Center, in Leoti, Kansas.

Lieutenant Commander Robert Perkins, MC, USN, completed his **Undersea Medicine/ Occupational Medicine Residency** at Duke University, during 2004. He is now assigned to Submarine Group Nine, in Bangor, Washington.

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Class of 1999.

Captain Karyn Ayers, USAF, MC, a Family Physician, is attached to the **447th Expeditionary Medical Squadron at Abu Ghrab Prison, in Iraq.**

Lieutenant John S. Brooks, MC, USN, is the **Senior Medical Officer and Medical Director of Search and Rescue at the Naval Air Station, in Meridian, Mississippi**.

Lieutenant Theresa L. Castro, MC, USN, is in her fifth year of Orthopaedic Surgery Residency at the National Naval Medical Center, in Bethesda, Maryland.

Major Robert Mabry, MC, USA, is serving as the **Unit Surgeon with the Army Special Operations Forces, Afghanistan**.

Lieutenant Colonel John Smyrski, MC, USA, board certified in Family Medicine and based out of the 25th Aviation Brigade, 25th Infantry Division (Light), Schofield Barracks, Hawaii, was assigned, during 2004, to Bagram Airfield, Afghanistan, as the **Joint Task Force Wings, Combined/Joint Task Force 76 Flight Surgeon**.

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Class of 2000.

Captain Jennifer Bager, MC, USA, a resident at the Tripler Army Medical Center in Hawaii, was **among the six highest scores in the Nation on the Otolaryngology In-Service Examination**, during 2003.

Captain Daniel Carlson, MC, USA, finished his Medicine Residency at the Tripler Army Medical Center in Hawaii, during 2004. He transferred to Wurzburg, Germany, and was **deployed with the 1st Infantry Division to Balad, Iraq, where he served in C Co., 299th Forward Support Battalion**.

Major Mark Carmichael, MC, USA, is currently serving as the **Chief Medicine Resident at the William Beaumont Army Medical Center, in El Paso, Texas.**

Lieutenant Commander Todd Gardner, MC, USN, is now assigned as the **Flight Surgeon to HMX-1, the President's Helicopter Squadron, at Quantico, Virginia.**

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Class of 2001.

Captain Shannon D. Faber, USAF, MC, completed her Emergency Medicine Residency at the Wilford Hall Medical Center, during 2004. She is now working in the Emergency Department at the Eglin Air Force Base Hospital, Florida.

Captain Nicole Powell-Dunford, MC, USA, based out of the 25th Aviation Brigade, 25th Infantry Division (Light), Schofield Barracks, Hawaii, was assigned, during 2004, as a **Flight Surgeon to the 2nd Battalion, 25th Aviation Regiment and is serving as the Task Force Diamondhead Flight Surgeon at Kandahar Airfield, in Afghanistan.**

Captain Tina Kinsley, USAF, MC, left her position as a Flight Surgeon assigned to the 51st Medical Group, Osan Air Base, Korea, during 2004, to begin a Dermatology Residency at the Wilford Hall Medical Center, Lackland Air Force Base, Texas.

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Class of 2002.

Major Mike Anderson, MC, USA, based out of the 25th Aviation Brigade, 25th Infantry Division (Light), Schofield Barracks, Hawaii, was assigned, during 2004, as a **Flight Surgeon to the 3rd Squadron, 4th Cavalry Regiment at Kandahar Airfield, in Afghanistan**.

Lieutenant Miguel Gutierrez, MC, USN, is assigned as a **Division Medical Officer with the Explosive Ordnance Disposal Mobile Unit-4**, **in Bahrain.**

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Selected Profiles of USU School of Medicine Graduates.

Army.

Major Christopher Lange, MC, USA, USU SOM Class of 1997, based at Fort Hood, Texas, **received a purple heart, during 2004, for injuries sustained from a mortar attack while serving as the Division Psychiatrist for the 1st Cavalry Division, in Iraq. Major Lange is the second USU alumnus to be injured in combat**, after Colonel Rhonda Cornum, MC, USA, USU SOM Class of 1986.

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Captain William Daniel Porter, MC, USA, USU SOM Class of 2001, 1st Cavalry Division Surgical Section (*recently returned from Iraq and featured in two articles in his home town newspaper in Linton, Indiana*).

There aren't many doctors from eastern Green County, according to Nelda Porter, so she and her husband Bernard are proud to say their son, Dan is an Army physician... Nelda is a teachers' aide at Eastern Elementary School and Bernard is a heat mechanic at Indiana University... Known simply as "Dan" to his parents, Captain William Daniel Porter, 1st Cavalry Division Surgical Section, graduated from Eastern Greene High School, in 1990. According to his mom, Porter attended Indiana University (IU) after his high school graduation and earned a Bachelor's Degree in Chemistry. Because he had been in the Reserve Officers Training Corps (ROTC) at IU, he had a four-year commitment to the Army after graduation. Three years into that, he got into medical school.

Porter didn't become seriously interested in pursuing a career in medicine until he was in the Army and serving at Fort Riley, Kansas. His first job involved a great deal of interaction with the physicians in his unit. After watching them in action, he decided that he wanted to continue his education. He studied for the Medical College Admission Test (MCAT) and then applied to several schools. He considered himself to be lucky to be accepted to USUHS (Uniformed Services University of the Health Sciences), in 1997.

He first became interested in the Army while he was an undergraduate student at Indiana University. He liked the idea of having a guaranteed job when he graduated. And, he found that the benefit package for a new officer straight out of college is pretty hard to beat... pay, medical care, leave, etc. He participated in the Reserve Officers Training Corps and was commissioned as a 2nd Lieutenant, in 1994. He had originally planned to serve a few years, enjoy some travel, and then come back to Indiana and settle down. But his plans changed when he worked with those Army physicians. As part of his education at USUHS, which is located on the campus of the National Naval Medical Center in Bethesda, Maryland, Porter traveled and worked in military and civilian hospitals and clinics throughout the United States, including stints in Hawaii, Texas, Ohio, Maryland, Georgia, Indiana, and Washington, D.C. After completing four years of medical school, the Army provided one year of training in clinical practice at Fort Gordon, Georgia, seeing outpatients on a daily basis, assisting at surgery, and caring for inpatients who were admitted to the hospital... He spent one year at

the Walter Reed Army Institute of Research in Silver Spring, Maryland, where he assisted in the investigation of an outbreak of malaria in a group of soldiers who had deployed to Afghanistan. He also traveled to Thailand and participated in a research study regarding traveler's diarrhea. And, he was involved in the collection of clinical and demographic data from patients returning from Iraq with cutaneous leishmaniasis, a skin disorder transmitted by infected sand flies.

The 33-year-old Captain explained that USUHS is a fully accredited medical school operated by the Department of Defense. The curriculum includes all of the standard medical subjects, such as anatomy, biochemistry and physiology. In addition, students at USUHS receive training in other disciplines that directly impact military readiness or contingency operations. Examples include tropical medicine; the physiology of extreme environments, such as desert, space and supersonic flight; disaster relief; and, humanitarian operations. Porter explained that these experiences have given him the necessary skills to improve the health and safety of our military forces while deployed overseas or in the United States. He is currently board certified to practice public health and general preventive medicine.

From mid-August of 2004 until early March of 2005, Captain Porter practiced in Baghdad, Iraq, while his wife, Laura; 8-year-old son, Will; 5-year-old daughter, Lilly; parents and others prayed for his safe return... Porter lived at Camp Liberty, a large compound on the west side of Baghdad, near the Baghdad International Airport. His job was to collect information and health-related data for over 28,000 coalition soldiers who were located at numerous camps throughout the city. He was also responsible for providing advice to other medical officers and commanders about public health issues in Baghdad. He spent some time each day seeing individual patients who were suffering from minor injuries or illnesses in a small clinic on the compound... His compound in Baghdad received rocket and mortar fire on a pretty regular basis. It was also not uncommon to hear explosions from insurgent attacks around the camp. Captain Porter explained that when those things happened, they relied on procedures to make sure everyone was accounted for, that all were in the proper uniform of protective gear... flak vest, helmet, and eye protection... and, then they went on with their duties. Naturally, hearing those rounds whistling overhead or seeing the smoke rise from a recent explosion was frightening, but you could not let fear overtake you. You had to focus on the training that you had received and continue to do your job.

- **Andrea McCann, Staff Writer,** *Doctor Credits Area Mentors with his Success*, Linton Daily Citizen, 2005.

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Navy.

Commander Michael Jacobs, MC, USN, USU SOM Class of 1989, was featured in an article, *Surgeon Tackles Station Ailments*, in Marines Online, during March of 2005.

MARINE CORPS AIR STATION IWAKUNI, Japan (March 25, 2005). Commander Michael M. Jacobs is the Group Surgeon, Branch Health Clinic, Marine Aircraft Group 12. The former Ivy League defensive back from Harvard University no longer tackles wide receivers, but takes on all injuries and ailments of Station residents. The 45-year-old father of two graduated from Harvard University, in 1981, with a Bachelor Degree in History. Dominating the Ivy League as a defensive back and quarterback for the Crimson all four years in which he attended the prestigious school, Jacobs decided to try out for a professional team in 1982, the Cincinnati Bengals... Although his career in the pros was short lived, during his one pre-season with the Bengals, his defensive presence was felt by at least one of the Bengal's opponents, when he caught a game winning interception against the Denver Broncos. After some time in the pros and the Canadian Football League, Jacobs felt the draw of a higher calling... He started to get a lot more interested in human anatomy and how everything works... by the 9th grade, he had already started to take a lot more science courses... He knew he wanted to go to medical school... his father was a Marine Corps Captain and a former National Football League tight end. After graduating and experimenting in professional football, Jacobs decided to make his childhood dreams of becoming a doctor a reality.

He attended another esteemed school, the Uniformed Services University of the Health Sciences, in Bethesda, Maryland, which only admits 165 students per year to its grueling program. All students sign contracts with the Navy, Army, or Air Force before being admitted. Among the biggest benefits USUHS offers to prospective students is a tuition-free, first-rate education; the only thing asked of the students in return is seven years in their respective Service upon completion of the program.

"Going to USUHS was such an awesome opportunity," said Jacobs. "I am very thankful to the American taxpayers for this unique opportunity." After graduating from USUHS and completing the time-consuming residency process, Jacobs began fulfilling his dream by treating Marines and Sailors.

"Being a military physician, I am allowed to treat people without all of the business people around to keep constraints on what or who I can treat. I don't have to worry about HMOs or making money for the clinic, all I have to worry about is getting the right treatment for my patients... I can't imagine doing anything else... This is a tour I saw as a great opportunity to enrich my family life. I take great pride in the fact that my family plays together and prays together. We have so many opportunities here."

\- **Lance Corporal Lukas J. Blom,** *Surgeon Tackles Station Ailments*, Marines Online, March 25, 2005.

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Air Force.

Major Joseph A. Pocreva, USAF, MC, USU SOM Class of 1996, was featured in *Graduate's Actions Played Part in Capture of Hussein*, USU Medicine, Winter 2004, page 27.

Despite daily headlines from Iraq outlining deadly terrorist attacks and frustrated American efforts to rebuild both the infrastructure and the morale of the region, a USU alumnus played a hand in the capture of Saddam Hussein. Major Joseph A Pocreva, USAF, MC, who graduated from USU in 1996, was serving as a surgeon for an Air Force Expeditionary Medical Squadron in Iraq. He performed emergency surgery at Kirkuk Air Base on an Iraqi civilian who had been involved in an automobile accident that left one man dead at the scene and two others with life-threatening injuries. Pocreva performed the emergency surgery while doctors from an Army Forward Surgical Team operated on the others. His patient had a large injury on his chest as the result of having collided with the steering wheel of the minivan he was driving. The man's breathing was labored and his right leg was grossly swollen. A chest tube was inserted to ease his breathing and doctors determined that his knee was fractured into about five pieces.

Surgery lasted for four hours, since the surgeons did not have the medical equipment normally used in such a procedure. Eventually, the patient, along with another who had less severe injuries, were stabilized and transferred to a civilian hospital to convalesce. Several aspects of Iraqi culture played major roles in what happened next. Despite the American surgeons' frustration with the surgery and the feeling that they had been inadequately equipped to treat such severe injuries, it turns out that the care they provided for the patient far exceeded what he would have received under the Iraqi medical system. First, expenditures on health care in Iraq under Saddam Hussein's regime amounted to about a dollar per person. Second, and perhaps more importantly, Iraqi culture dictates that if a doctor treats a patient who ultimately dies, the family holds the doctor responsible for the death. Consequently, Iraqi doctors routinely neglected to treat critically-injured patients for lack of sufficient equipment and supplies and the fear of reprisals from the patients' families. The two patients treated by the Expeditionary Medical Squadron returned home, to the delight of their families, who had assumed them to be dead.

The families were, in fact, so grateful for the medical care that they gave information to Army intelligence that contributed to Saddam Hussein's capture. Major Pocreva and the rest of his squadron were cited for their involvement. There was a fundamental shift in opinion in the patient's family and that community because of the treatment provided by Major Pocreva. His role in Hussein's capture gave Major Pocreva satisfaction in a decidedly uncomfortable environment. In his own words, "So many of us came to Iraq with the hopes of making a difference. We quickly realized that life in Iraq is not flashy, romantic, or least of all comfortable. We spend our days getting ready for terrible things we hope never happen. We take care of people with everyday aches, sniffles, colds, cuts, and loneliness. We trudge through the mud and wind to get chow which isn't that great. We laugh at the humor we rely on as our drug of choice. We cherish the love of our families and friends who don't forget why we are here. We live day to day and frequently lose sight of the big picture. But sometimes something comes across your plate which gives you the chance to participate. I am thankful to be a part of the team which had a part in capturing Saddam Hussein."

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United States Public Health Service.

CAPT Sandra Kweder, M.D., USPHS, USU SOM Class of 1984, Associate Professor, USU SOM Department of Medicine, serves as the **Deputy Director of the Food and Drug Administration's Office of New Drugs**. CAPT Kweder's previous assignments included serving as Deputy Director of the Office of Drug Evaluation IV, Co-Chair of FDA's Pregnancy Labeling Taskforce, Acting Director of the Office of Review Management, and Acting Director of the Office of Drug Evaluation II.

CAPT Diane Mitchell, M.D., USPHS, USU SOM Class of 1984, serves as the **Deputy Director for a large division at the Center for Devices and Radiological Health, Regulatory Affairs for Reproductive Devices, at the Food and Drug Administration**.

CAPT Noreen Hynes, M.D., USPHS, USU SOM Class of 1985, is currently working with the Food and Drug Administration on bioterrorism issues. CAPT Hynes' expertise is in international health, microbes of global and terrorism significance, and associated vaccine development.

CAPT Anderson Funke, M.D., USPHS, USU SOM Class of 1988, served as the **Medical Director of the Carolina Health Centers in Greenwood, South Carolina,** during 2004.

Commander Katy Ciacco-Palatianos, M.D., USPHS, USU SOM Class of 1991, holds an increasingly important headquarters position as the Principal Risk Management Consultant. **She represents the Indian Health Service (IHS) at Health and Human Services (HHS) and at interdepartmental meetings involving quality of care, patient safety, and workforce safety and health.** She is currently representing the IHS on the USPHS Physician PAC and a variety of departmental functions; she also serves as a Member of the USPHS Commissioned Corps Award Branch.

CAPT Karen Parko, M.D., USPHS, USU SOM Class of 1991, was one of only 18 PHS Commissioned Corps officers selected for an Exceptional Capability Promotion. She assumed the rank of Captain (0-6) on July 1, 2002. CAPT Parko, due to her assignment as the Director, Neurological Services, at the Northern Navajo Medical Center in Shiprock, New Mexico, was also selected by U.S. Medicine, a medical news organization, as one of the 10 top finalists for the Frank Brown Berry Prize in Federal Healthcare, during 2003. She transferred to the Neurology and Rehab Service at the San Francisco Veteran's Administration Medical Center in California, where she is also serving as the **Chief Clinical Consultant in Neurology for the Navajo Area Indian Health Service**. ***CAPT Parko has pointed out that her experience at USU provided her with a good overview of medicine and how it can be applied in different settings; and, that the wide scope of medicine taught at the USU SOM has left her prepared to handle multiple medical situations outside of her specialty***.

Commander Noel Delmundo, M.D., USPHS, USU SOM Class of 1992, was assigned as a **Staff Member in the Obstetrics and Gynecology Department at the Phoenix Indian Medical Center in Arizona,** during 2004.

Commander Mary Porvaznik, M.D., USPHS, USU SOM Class of 1992, served as the **Chief of Family Medicine at the Northern Navajo Medical Center in Shiprock, New Mexico,** during 2004. She supervised a department of 13 physicians who provide primary care in the Medical Center and in several community clinics outside of the Center. Besides a busy out-patient clinic, Commander Porvaznik's department also ran a busy in-patient adult and pediatric service, including an intensive care unit and full obstetrical services. Commander Porvaznik was born in the Indian Health Service Hospital in Tuba

City, Arizona; her father was a physician who also served the Native American population. ***Commander Porvaznik reported that she realizes the intense training she received at the USU SOM was outstanding and the summer field training sessions were incredibly useful***.

Commander Kimberly (Clancy) Brownell, M.D., USPHS, USU SOM Class of 1993, served as a **Staff Pediatrician at the Northern Navajo Medical Center in Shiprock, New Mexico,** during 2004.

Commander Jeffrey Curtis, M.D., USPHS, USU SOM Class of 1993, is a **Staff Physician in the Medicine/Family Practice Department at the Phoenix Indian Medical Center in Arizona**.

Commander Brent Warren, USPHS, M.D., USU SOM Class of 1993, is an **Ophthalmologist and an Assistant Professor of Surgery at USU**. He helped to establish the state-of-the-art Refractive Eye Surgery Clinic at the Walter Reed Army Medical Center in Washington, D.C., and has performed hundreds of laser vision corrective surgeries on soldiers identified for combat.

Commander Christine Casey, M.D., USPHS, USU SOM Class of 1995, is now serving as an **Epidemiologist for the Centers for Disease Control and Prevention** and works in the National Immunization Program, which has a leading role in bioterrorism surveillance and prevention.

Lieutenant Commander John Mohs, M.D., USPHS, USU SOM Class of 1996, was assigned to the Northern Navajo Medical Center in Shiprock, New Mexico, as the **Vice Chief of Family Medicine and the Director of the Family Medicine Health Clinic,** during 2004. He was responsible for scheduling, developing and maintaining practice guidelines, and for conducting performance improvement studies; there are 13 physicians and 10 nurses assigned to the clinic.

Lieutenant Commander Kimberly Mohs, M.D., USPHS, USU SOM Class of 1996, was assigned to the Northern Navajo Medical Center in Shiprock, New Mexico, as the **Chief of Internal Medicine**, during 2004. As such, she provided oversight for a department of six internists who provide primary care as well as cardiology and pulmonary related procedures and endoscopy. Her department also held a number of specialty clinics, including hypertension, tuberculosis, renal disease, gastroenterology, and a uranium miners' clinic, which she also supervised. The Four Corners area has been a primary site for uranium mining over the years, and the clinic mainly treats patients with lung disease or other health problems resulting from exposure to uranium.

Lieutenant Commander Susannah Q. Olnes, M.D., USPHS, USU SOM Class of 1997, is a Pediatrician at the W.W. Hastings Indian Medical Center in Tahlequah, Oklahoma, where she designed and implemented a Diabetes Prevention Program for at-risk teens (Trim Native Teens - TNT).

Lieutenant Commander Julia C. (Watkins) Meyers, M.D., USPHS, USU SOM Class of 1998, is currently working at the Wichita County Health Center in Leoti, Kansas.

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FACULTY OF THE SCHOOL OF MEDICINE.

As President of the Association of American Medical Colleges, which represents the nation's 125 accredited medical schools as well as 400 major teaching hospitals and 90 academic and professional scientific societies, I write to express the Association's strong support for the unique role and mission of the Uniformed Services University of the Health Sciences...

Faculty at USUHS are widely recognized among those of peer institutions for the excellence of the medical education program and are frequent invited speakers at our annual meetings on this important topic. Moreover, USUHS with its Center for Patient Safety can and will serve as a laboratory for this critical need for our entire profession.

- **Jordan J. Cohen, M.D., President, Association of American Medical Colleges,** Letter to the Deputy Secretary of Defense, April 27, 2005.

Composition. As of November 2004, the School of Medicine had 305 full time assigned faculty members: 195 civilians; and, 110 uniformed officers (*of note, in November of 2004, recruitment was underway for 11 faculty positions within the SOM*). There are approximately 3,928 non-billeted or off-campus faculty who assist in the USU programs of which 1,549 are civilians and 2,379 are uniformed officers.

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SOM Clinical and Consultative Services Generate an Estimated $15,688,266 in Cost Avoidance for DoD in Fiscal Year 2004. The affiliated Medical Treatment Facilities (MTFs) in the National Capital Region (the National Naval Medical Center (NNMC), the Walter Reed Army Medical Center (WRAMC), and the Malcolm Grow Air Force Medical Center (MGMC) use the services of the USU faculty for the provision of health care.

The USU SOM civilian and military clinical faculty members, as a part of maintaining their credentials and level of proficiency, provide medical services and consultation to the hospital patients and staff and teach and supervise residents. In order to meet national accreditation standards, all teaching hospitals must provide both patient care and teaching/supervision of medical students, interns, and resident physicians. Cost avoidance for the Department of Defense (DoD) is generated by the hours of clinical service and medical expertise provided by the USU civilian and military faculty. Thirteen USU SOM academic departments (Anesthesiology, Dermatology, Family Medicine, Department of Medicine, Military and Emergency Medicine, Neurology, Obstetrics and Gynecology, Pathology, Pediatrics, Preventive Medicine and Biometrics, Psychiatry, Radiology and Nuclear Medicine, and Surgery) provided clinical and consultative support to DoD that totalled some 142,748 hours in 2004, with an estimated cost avoidance of $15,688,266. Without the patient care and special services provided by the USU SOM faculty throughout the DoD medical facilities, the military hospitals, clinics, and other facilities would find it necessary to augment their medical staffs by 142,748 work hours in order to maintain the level of patient care within the direct care system. (***Note:*** *the total cost avoidance reported by USU for clinical care also included 4,553 hours of clinical services provided by the Graduate School of Nursing at a manpower cost of $406,641,*

which resulted in the provision of an overall total of 147,301 hours of clinical services and generated a USU-wide manpower cost-avoidance for DoD of $16,094,907, during 2004.)

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USU SOM Faculty Achieve National and International Recognition.

This excellent health sciences university is now well established among the most highly respected of American health professional schools. I speak not only for myself but for the Association of Academic Health Centers and for the leaders of our member academic health science centers. USUHS and its leaders have worked with others in the Association of Academic Health Centers to advance the development of organized distance learning techniques in health professional education, in bioterrorism defense, in the strategizing about global health and domestically about the systemic delivery of population-based health care and preventive services, in all of which areas USUHS is in a leadership position.

- **Roger J. Bulger, M.D., President and CEO, Association of Academic Health Centers,** Letter to the Deputy Secretary of Defense, April 28, 2005.

The USUHS SOM Graduate Education Programs in Public Health, with their emphasis on community health, rank sixth in the Nation according to U.S. News & World Report's *2004 Edition of America's Best Graduate Schools* on the list of the top 10 community health master or doctorate programs.

- **The Honorable David S. Chu, Under Secretary of Defense, Personnel & Readiness,** Nomination Statement to Accompany the Award of the DoD Medal for Distinguished Civilian Service, Presented to the USU President, August 2, 2004.

The University trains physicians to practice state-of-the-art medicine under the most adverse conditions on the most critically ill and wounded patients. It also provides graduate training in public health and biomedical research to individuals committed to careers in health science. To do this, **the University provides education in the basic and clinical sciences that is highly recognized by the Nation's leading organizations in the health professions (i.e., the American Medical Association (AMA), the Association of American Medical Colleges (AAMC), the Association of Academic Health Centers (AHC), the Institute of Medicine (IOM)**, etc.,). In addition to the curricula found at the other 124 medical schools in the United States, USU also prepares its graduates to deal with situations unique to the practice of military medicine. **Such an education requires an exceptional and committed faculty whose performance and accomplishments allow them, and the institution they represent, to command the respect of their colleagues at civilian institutions.** USU must compete with other medical schools for these faculty; and, to retain them, it must provide its faculty with credible opportunities for professional recognition and

advancement. **By any of the objective criteria traditionally used to measure faculty performance, the faculty of USU demonstrate, on a continuing basis, that they are the equals of their colleagues at other medical schools; selected examples of their accomplishments include:**

- USU and its individual schools and programs continually receives **maximum accreditation** when reviewed by national organizations charged with program evaluation and accreditation;

- In 2004, seventy-five **USU faculty were the recipients of over $28M in investigator-initiated peer-reviewed funding**, the *sine quo non* of significant research;

- Faculty **publish extensively in high impact peer-reviewed journals**; and, their results are cited repeatedly by faculty at other institutions;

- Faculty are **invited to serve on advisory panels of public and private agencies, on the editorial boards of prestigious journals, and as officers of leading scientific societies**;

- A member of the **USU faculty leads one of ten state-of-the-art national proteomic centers funded by the National Heart Lung and Blood Institute** to study cystic fibrosis;

- USU faculty are **leading participants in a regional consortium of institutions funded by the National Institute of Allergy and Infectious Diseases to develop a Center of Excellence for Biodefense and Emerging Infectious Diseases**; and,

- In recognition of the expertise of its faculty, **USU has been designated by the American Type Culture Collection as the reference center for toxins recognized as select agents in bioterrorism**.

Overall, the SOM faculty has clearly achieved recognition with its peers across disciplines and specialties. Due to the unique nature of the USUHS SOM mission and certain of its departments, faculty in the Departments of Military and Emergency Medicine, Preventive Medicine and Biometrics, Psychiatry, and Medical History have achieved national and international recognition in the military unique practice of medicine (*Appendix C provides examples of individual achievements and recognition*).

> ***Essential Science Indicators*, an ISI evaluation tool, ranks the top journals and nations, and the top 1 percent of scientists, institutions and companies by field of research. To even be listed in any one category, an institution has to be in the top 1 percent by number of citations in the period covered by Essential Science Indicators (ESI). *For the period covering the last ten years, USU ranked in the top 1 percent in seven fields: Clinical Medicine; Immunology; Biology & Biochemistry; Microbiology; Neuroscience & Behavior; Psychiatry/Psychology; and, General Social Sciences*. This ranking is based on the number of citations received by papers published by USU faculty in the period.**
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> - **Ms. Ursula Scott, Assistant Vice President, USU Learning Resource Center,** *Essential Science Indicators and USU*, February 17, 2004.

As USU medical students complete their third and fourth-year clinical clerkships at over 22 military hospitals, representing the entire spectrum of the MHS, the majority of the SOM clinical faculty are located at the teaching hospitals. **The large number of enthusiastic, well-trained primary care and specialist clinicians, based at the hospitals throughout the Military Health System, is an invaluable resource for teaching medical students.** Under the oversight and guidance of clinical clerkship directors, this large faculty does an excellent job of medical student clinical training, based on surveys of both students and department chairs. To further enhance communication and cooperation between the USU SOM and its 22 affiliated teaching facilities, the Office of the Associate Dean for Clinical Affairs (ADA) provides oversight for relationships and interactions between the SOM and its clinical teaching sites. Issues of concern from all parties can now be readily addressed as changes in the military health care delivery system are implemented. The ADA visits the major Military Medical Centers on a regular basis; reevaluates and updates the SOM's affiliation agreements with its major teaching affiliates; and, ensures that the agreements are consistent with the requirements of the Liaison Committee on Medical Education (LCME) and with the current needs of the Military Medical Centers, the Military Services, and the University. This process ensures that clear routes of communication exist and that areas of mutual interest are appropriately defined and addressed, which has resulted in overall improved relationship between the SOM and its numerous clinical sites. A number of the hospital-based faculty are also involved in clinical research programs through the active clinical investigation programs based at the teaching hospitals.

Outcome data such as student-reported satisfaction, student performance on National Board examinations, hospital commanders' overall satisfaction with the performance of USU graduates, and the large percentage of operational and leadership positions held by USU graduates throughout the Military Health System, **indicate that the SOM faculty is performing a stable and highly satisfactory job of educating medical students for the Uniformed Services and the Nation**.

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Collaborative Efforts.

Teaching. Cooperation in teaching has been systematically developed within the departments, between departments, and within subspecialties, to improve the educational experience of both medical and graduate students (***the SOM faculty also provides the instructional base for the Graduate Education Programs at the University***). The composite curriculum in behavioral sciences, drawing on Neurology, Psychiatry, and Medical Psychology, is a significant example of interdepartmental cooperation in undergraduate medical education.

The graduate education programs in Neuroscience, Molecular and Cell Biology, and the Interdisciplinary Graduate Program in Emerging Infectious Diseases (EID) illustrate a sound cooperative relationship in research and graduate education (*Section IV of this report provides detailed descriptions of these Graduate Education Programs. For example, the EID Program leading to the Doctoral Degree offers courses on the agents and effects of bioterrorism; to date, this program is one of the only graduate programs in the Nation to offer formal training in this critical area*). The Tumor Biology Program, an interdepartmental effort between the Departments of Pathology and Surgery, serves as a bridge between basic science and clinical practice in Medical Oncology. The special interest groups in curriculum studies have resulted in basic science input into the hospitals, with collaboration in research, and more importantly, with collaboration in teaching, as the basic scientists provide science instruction to the medical house

officers and junior faculty within certain subspecialties of mutual interest. In addition, faculty members use electronic mail and computer bulletin boards quite extensively, which also enhances their collaborative efforts throughout the Military Health System.

The Department of Anatomy, Physiology and Genetics. A significant change took place over the past five years in the academic structure of the USU SOM. The Department of Anatomy and Cell Biology and the Department of Physiology were formally merged to create the Department of Anatomy, Physiology and Genetics (APG). The philosophy of the newly formed department conforms with the mission and goals of the USU Strategic Plan; it is based upon a commitment to the highest level of excellence in teaching, research, and administration. The departmental merger has consolidated the teaching, research, and administrative functions of a substantial component of the University within a single faculty group under the leadership of a single Department Chair. Integration of the formerly separate anatomy and physiology curricula is resulting in a comprehensive, cohesive and dynamic educational experience that spans the entire first year of medical education. As expected, the departmental merger is yielding benefits beyond the immediate outcomes of curriculum integration.

A focus on Understanding Tissue and Organ Function within a Clinically Relevant Context. Physicians often cite Sinclair Lewis' Arrowsmith as an inspiration for entering medicine. As noted in the preface to the 2005, 39th Edition of Gray's Anatomy, Lewis saw Gray's (as well as the Bible and Shakespeare's works) as the core texts for a doctor's education. The faculty of APG provide the nation's next generation of physicians with a comprehensible, intellectually interesting, and integrated curriculum for understanding tissue and organ function within a clinically relevant context. The goal of APG is to integrate the information explosion resulting from the Human Genome Initiative and a myriad of cellular and molecular biological approaches, so that biomedicine explains how the human body functions as an integrated self-regulating system. The systems biology approach is seen as a means to further improve the information transfer process for the major responsibility of APG - the education of USU medical and graduate students. The Basic Anatomy and Physiology Courses have been integrated and are providing students with a comprehensive understanding of tissue and organ function. The APG faculty members oversee courses that extend for the entire first academic year; in fact, first-year medical students spend approximately 53 percent of their first year of medical education with APG faculty. APG has organized its basic instruction into three modules. ***Introduction to Structure and Function*** introduces the student to cell classification, organelle function, and cellular processes, followed by study of the gross anatomy of the human body. An emphasis is placed upon understanding anatomical relationships and the causes and functional consequences of anomalies arising from disease processes. Gross anatomical study of the head and neck region, neuroanatomy, and basic clinical neurology are taught in the second module, ***Clinical Head and Neck and Functional Neuroscience***. Clinical cases are presented and case studies are assigned to students to reinforce their understanding of neurological function. Then, the students return to cellular and subcellular analysis in the third module, ***Structure and Function of Organ Systems***. This module presents an integrated approach to understanding the functions of different cells and organ systems, which include: the functions of muscle; heart; endocrine systems; kidney; respiration; gastrointestinal physiology; hematology; and, reproduction. Again, basic principles are emphasized to underscore clinical relevance.

The educational programs of APG are overwhelmingly lauded by USUHS medical and graduate students. Its faculty are recipients of many awards, including the SOM's *Outstanding Civilian Educator Award*, the *Class of 2007 Well Beyond the Call of Duty Award*, and three separate awards for excellence in medical education: *Outstanding Instructor*; *Student Advocate*; and, *Best Use of Medical Technology*

Awards. During 2004, the medical students hosted ***Operation Appreciation***, during which APG courses received *Best Overall Course*, *Best Course Supplemental Materials*, and *Outstanding Class Notes*. All seven individual awards were presented to APG faculty members.

In addition to faculty participation in graduate courses offered by the various Doctoral Programs at the University, APG faculty members, in a collaborative project with the National Naval Medical Center (NNMC) Department of Anesthesiology and the USU SOM Department of Anesthesiology, operate the Patient Simulation Laboratory (PSL). Since its inception in 1997, the PSL has created and presented patient simulation-based clinical education for USU students as well as for clinicians from local military treatment facilities. ***To extend the reach of the simulation-based education, the PSL supports an ultra-high speed Internet-2 Advanced Distance Education Network throughout USU with links to NNMC and the National Library of Medicine***. APG faculty are also active members of two USU interdisciplinary programs: the Molecular and Cell Biology and the Neuroscience Graduate Programs. Many graduate students in these programs are undertaking their thesis research in APG laboratories.

True to Arrowsmith's view that bench research leads to new breakthroughs for conquering disease and illness, APG faculty direct substantive medical research programs related to military medicine. This newly integrated Department offers a wide range of varied and collaborative research programs, which employ anatomical, electrophysiological, biochemical, cellular and molecular biological methods to address medical problems associated with neurodegenerative disorders, such as: Multiple Sclerosis; Parkinson's Disease and Alzheimer's Disease; Down Syndrome; Canavan Disease; traumatic brain injury; stroke; hemorrhagic shock; and, peripheral nerve injury. Faculty members also have active research programs in hypertension and cardiovascular pathophysiology, neuroimmune responses of gastrointestinal function, and understanding metabolic disorders such as Cystic Fibrosis and Diabetes. Studies within the Department focus on: the regulation of neuronal gene expression; neuroendocrine secretory processes; the role of glial cells in CNS injury and disease; and, neuronal regeneration and plasticity. Several programs employ state-of-the-art approaches, to include: cell therapy using engineered cells; gene therapy using viral and chemical vectors; knock-out and transgenic mouse models; microarray; mass spectrometry; and, genomic and proteomic technologies. The Department's research funding is supported by the National Institutes of Health, the National Science Foundation, the TriService Nursing Research Program, the Alzheimer's Association, the Juvenile Diabetes Foundation, the Cystic Fibrosis Foundation, Foundation Jerome Lejeune, the Maryland State Board of Spinal Cord Research, the Department of Defense/Veterans Affairs Head Injury Program, as well as the USU Intramural Grants Program. **The total amount of research funding in 2004 for APG exceeded $5.9 million.**

Interdisciplinary Research Programs. The research and development goals of the USU strategic plan are to build, sustain, and publicize interdisciplinary research programs relevant to the needs of the Uniformed Services. In addition to the above-described research in the newly integrated Department of APG, there are three interdisciplinary research programs at USU: 1) ***Emerging Infectious Diseases.*** Initially, a special interest group from the USU SOM Departments of Microbiology and Immunology (MIC) and Preventive Medicine and Biometrics (PMB), to include faculty from other departments who were interested in infectious diseases, began meeting and successfully submitted a proposal for an NIH training grant in this area. This effort led, in 1999, to the establishment of the Emerging Infectious Diseases (EID) Graduate Program with seven inaugural graduate students matriculating in the Fall of 2000. Since then, 31 uniformed and civilian students have entered the program, to include nine students who entered the EID Program in the Fall of 2004. The EID Program has three academic tracks within the field of emerging infectious diseases: Microbiology and Immunology; Pathology; and, Preventive Medicine/Parasitology; the research training emphasizes modern methods in molecular biology, cell biology, and interdisciplinary

approaches. **As part of the EID Program, courses on the agents and effects of bioterrorism are offered. To date, this program is one of the only graduate programs in the country to offer formal training in this critical area.** The establishment of this program at USU by the SOM formally recognizes the breadth of disciplines spanned by emerging infectious diseases and the extent to which advances in these areas can affect the current and future health of individuals within the United States and also in the global arena. The implementation of an interdisciplinary and interdepartmental Program in Emerging and Infectious Diseases broadens and enhances the overall educational objectives of USU and brings together faculty and students in a scientific community designed to stimulate and promote collaborative interactions. **Eleanor S. Metcalf, Ph.D., Professor, USU SOM Department of Microbiology and Immunology,** is the Program Director; she can be contacted by e-mail at <*emetcalf@usuhs.mil*> or at <*www.usuhs.mil/mic/eid.html*>; 2) ***Molecular and Cell Biology.*** An Interdisciplinary Program, in Molecular and Cell Biology (including Genetics), was developed in 1993, to contribute to cross-disciplinary interactions and to develop the critical skills needed for data presentation and analysis; the program also includes a seminar series and a journal club, all of which support the Ph.D. Program. This interdisciplinary Ph.D. Degree Program offers training to address many of the fundamental questions of modern biology ranging from protein-nucleic acid interactions to cytokines, growth factors, and developmental biology. Research areas include: molecular biology of lymphocyte interactions; host-pathogen interactions; cell surface, cytoplasmic and nuclear receptor signaling pathways; exocrine secretory processes; and, gene targeting in mice to include a transgenic mouse facility for targeted gene disruption using homologous recombination. Two students entered the program in August of 2004; one civilian received a Doctoral Degree and one uniformed officer received a Master Degree during USU's May 2004 Commencement Ceremonies. **Jeffrey M. Harmon, Ph.D., Professor, USU SOM Department of Pharmacology,** was appointed as the third Director of the Molecular and Cell Biology (MCB) Program; he oversees the studies of the MCB students and coordinates with faculty mainly from six SOM departments. He can be contacted by e-mail at <*jharmon@usuhs.mil*> or <*www.usuhs.mil/mcb/index.html*>; and, 3) ***Neuroscience.*** The Interdisciplinary Program in Neuroscience and its Ph.D. Graduate Program are supported by faculty members whose primary appointments are established throughout the SOM departments. It provides a seminar series and flexible program of courses and research areas for graduate students and postdoctoral fellows who have strong training in the biological, behavioral, and/or physical sciences. Research areas strongly represented by faculty include: development, regeneration, and plasticity in the nervous system; molecular neurobiology; and, adaptive responses of the nervous system to stress, injury, and a changing environment. Integrated interdisciplinary instruction in the development, structure, function, and pathology of the nervous system and its interaction with the environment is also included. Three students entered the program in August of 2004; and, two individuals (both civilians) received Doctoral Degrees during USU's May 2004 Commencement Ceremonies. **Regina C. Armstrong, Ph.D., Professor, USU SOM Department of Anatomy, Physiology and Genetics,** is the Director of the Neuroscience Program; Doctor Armstrong can be contacted by e-mail at <*rarmstrong@usuhs.mil*> or at <*www.usuhs.mil/nes/home.html*>.

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Selected Profiles of USU School of Medicine Faculty.

USU Associate Dean Selected to Serve as Chair, Accreditation Council for Graduate Medical Education (ACGME). Emmanuel G. Cassimatis, M.D., Professor of Psychiatry and SOM Associate Dean for Clinical Affairs, was ***elected to serve as Chair of the Accreditation Council for Graduate Medical Education (ACGME) for a two-year period, effective October 1, 2004*** (*he replaced Charles L. Rice, M.D., who was selected by the Secretary of Defense to serve as the fifth President of USU*). Dr. Cassimatis continues to serve on the American Medical Association (AMA) Council on Medical Education and on the AMA/American Board of Medical Specialties (ABMS) Liaison Committee on Specialty Boards, as the Immediate Past Chair for both organizations. He additionally serves on the Board of Managers of the Association of Military Surgeons of the United States (AMSUS), as the AMSUS Delegate to the AMA House of Delegates, and as the Vice President of the National Medical Veterans Society. ***He was most recently appointed to the Leadership Group, AMA Initiative to Transform Medical Education.*** During 2004, Dr. Cassimatis made presentations at several national and international meetings, including a Workshop on Military Medical Education at the Medical University of Lodz, Lodz, Poland; and, at a joint meeting of the Hellenic Psychiatric Association and the Hellenic-American Psychiatric Association in Kos, Greece. Dr. Cassimatis' contributions to medical education were ***recognized, during 2004, by the USU students, who elected him to Alpha Omega Alpha as a faculty member***.

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USU Internist Receives Inaugural Award. Major Steve Durning, USAF, MC, Associate Professor, USU SOM Department of Medicine, was ***selected to receive one of the most prestigious awards offered by the American College of Physicians, the Herbert S. Waxman Award***, during 2004. The award is designed to provide national recognition to an outstanding medical educator. Major Durning, a general internist, ***directs the Introduction to Clinical Reasoning Course*** for second-year medical students; and, he has developed a variety of innovative measures that have significantly improved medical student performance on both standardized tests and clinical practicum. Major Durning received the award during a special ceremony at the American College of Physicians' Annual Session, in April of 2005.

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USU Research Featured in National Geographic Special. During 2004-2005, **Michael J. Daly, Ph.D., Associate Professor, USU SOM Department of Pathology,** continued to conduct research in genome-based, high-throughput technologies of the radiation resistant bacterium *Deinococcus* radiodurans. ***Dr. Daly published an experimental paper in Science magazine in November of 2004, showing that intracellular manganese accumulation facilitates radiation resistance. The paper was reported in newspapers and this research will be featured in a National Geographic special, in 2005.*** A summary of the work was published by Nature (*http://www.nature.com/news/2004/040927/pf/040927-18_pf.html*). Since then, Dr. Daly has validated two predictions of his model, with important implications. This ***current work challenges two widely held beliefs: 1) the principal cause of cell death in irradiated cells is DNA damage; and, 2) evolution of aerobic life on Earth followed the appearance of photosynthesis***. Collectively, his group's research supports that superoxide, which is a commonly ignored oxygen-free radical produced by radiation, is a major protagonist in radiation toxicity, mediated by protein damage; and, bacteria such as D. radiodurans can generate oxygen gas from oxygen radicals produced during irradiation. If this is the case, it raises some interesting questions: 1) could the production of high levels of superoxide by radiation

explain why many organisms are killed at doses that cause little DNA damage?; 2) could aerobic life on Earth have evolved before the appearance of photosynthesis?; 3) are superoxide-scavengers such as Tempol potentially good radioprotectors?; and, 4) might superoxide derivatives such as peroxynitrite help explain the radiation-induced *bystander response*? The Year 2004 also brought in ***two new research grants for Dr. Daly from the United States Department of Energy (DOE), to support on-going work in radiation biology, totalling $1.3 million***. All of this progress and experience continues to be brought to bear on his teaching, and now, to the USUHS Radiation Safety Committee (RSC); Dr. Daly was appointed to serve as the Chairman of the RSC in April of 2005.

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Colonel Andrew J. Satin, USAF, MC, Professor and Chair, USU SOM Department of Obstetrics and Gynecology, became ***the first uniformed member appointed to the Accreditation Council for Graduate Medical Education (ACGME) Residency Review Committee for Obstetrics and Gynecology***. This twelve-member group is responsible for accreditation decisions for all Obstetrics and Gynecology Residency Programs in the United States. Colonel Satin, a 1986 graduate of the USU SOM, is ***board-certified in Maternal-Fetal Medicine and Obstetrics and Gynecology and nationally recognized as a leader in the use of simulation for residency training in Obstetrics and Gynecology***. In addition to publishing numerous manuscripts, he has ***delivered plenary session lectures to the Council of Resident Education (CREOG) and workshops for the Association of Professors of Gynecology and Obstetrics (APGO)***. A nationally recognized expert in labor stimulation and labor management, Colonel Satin has authored over 120 peer-reviewed manuscripts, abstracts, and book chapters. In addition to his duties at USU and the National Capital Consortium, Dr. Satin ***serves as an Oral Examiner for the American Board of Obstetrics and Gynecology***. He was also appointed to serve on the American College of Obstetricians and Gynecologists Committee on Practice Bulletins - Obstetrics; this group is responsible for issuing national guidelines for obstetric practice.

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USU Starter Grant Leads to the Elimination of Pain and Saving the Lives of Patients with Barrett's Esophagus and Other Deadly Esophageal Diseases Without Performing Major Surgery. USU faculty members, **CAPT Mark Johnston, MC, USN,** and **Andre Dubois, M.D., Ph.D.,** both members of the **USU SOM Department of Medicine**, were featured in an article, *Navy Doctor Pioneers Esophagus Treatment Technique*, on April 19, 2005, by the American Forces Press Service. CAPT Mark Johnston, at the National Naval Medical Center, Bethesda, Maryland, has found a way to eliminate pain and suffering and save the lives of patients with Barrett's Esophagus and other deadly esophageal diseases without performing major surgery, which has been the normal recourse. CAPT Johnston is making medical history with his innovative use of ***cryotherapy***, the application of extreme cold, for the treatment of serious esophageal diseases. The freezing technique has been used for decades in treating certain cancers and in various dental and pulmonary procedures. However, this marks the first time the technique, which dates back to around 1850, is being used in the field of gastroenterology for esophageal mucosal ablation and other diseases. Barrett's Esophagus is a condition that occurs when acid from the stomach burns off the lining of the esophagus. Generally, when it heals, it will produce normal tissue; however, in some cases abnormal tissue may result; with the advent of this kind of cell, the risk of getting cancer in the esophagus significantly increases. Barrett's Esophagus can lead to two common forms of esophageal cancer, squamous cell carcinoma and adenocarcinoma; about 700,000 adults in the United States suffer from this disease. In 1994, CAPT Johnston questioned why one could not freeze the esophagus; following an extensive search,

he could not find anyone working with this concept. Encouraged by his USU mentor, **Dr. Andre Dubois**, he built a prototype device in his home garage. ***In 1995, he obtained a $12,000 starter grant from USU*** and was able to continue with his research. Today, CAPT Johnston's freezing technique is in the research and development stage; ***it replaces surgery*** (which generally results in the patient being hospitalized from 7 to 21 days) ***with an out-patient procedure that takes only 15 to 20 minutes, and is pain-free; the patient can eat and drink immediately following the procedure. More than 25 patients have been successfully treated, including two with high-grade dysplasia, a close precursor to cancer***. In addition, one patient, who could not receive additional radiation chemotherapy upon the recurrence of cancer in his esophagus, has also received the procedure; following four 15-minute treatments with cryoablation, one month apart, the cancerous tumor is totally gone and the patient is currently in remission. A technology firm has agreed to develop the device; however, in order to comply with patent laws and royalty agreements, CAPT Johnston had to permanently divest himself of any royalties resulting from his device and has designated all royalties to a charity devoted to humanitarian missions. CAPT Johnston's clinical research is not being done anywhere else.

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Retired USU President Is Named Health Leader of the Year. James A. Zimble, M.D., President of USU from 1991 through August of 2004, and 30th Surgeon General of the Navy, was selected as ***the Health Leader of the Year by the Commissioned Officers Association (COA) of the United States Public Health Service (USPHS).*** Vice Admiral Zimble was recognized for his distinguished service directed toward the goal of advancing the Nation's health status. Dr. Zimble's service as the Navy Surgeon General was marked by a progression of difficult national crises, which were well met through his dedicated and skillful leadership. That style was honed through his service in a variety of clinical and managerial posts prior to his elevation to serve as the head of the Navy's health and medical system. He carried that experience and personal touch to his post retirement position as President of USU. His commitment to performance-based leadership, force protection, technologic innovation, rapid reaction to global threats and, humanitarian crises made USU an academic hallmark of innovative health training and response. His leadership contributed to making USU Graduate Education Programs rank among the most respected in the country. Today, PHS Commissioned Corps officers are enrolled in medicine, nursing, and Graduate Education Programs in Public Health at USU alongside other uniformed personnel from the Army, Navy, and Air Force. Previous recipients of the COA Health Leader of the Year Award include: Dr. Julie Gerberding, Director of the Centers for Disease Control and Prevention; Rear Admiral Kenneth Moritsugu, United States Deputy Surgeon General; the Honorable Tommy Thompson, former Secretary of the Department of Health and Human Services; and United States Senators Bill Frist, Tim Hutchinson, and John Warner. Also, on March 11, 2005, the American Medical Association (AMA) announced that ***Dr. Zimble was one of eight recipients of the 2005 Dr. Nathan Davis Award for Outstanding Government Service, the highest award the Nation's largest physician organization can bestow upon a public official.*** The award, named for the founding father of the AMA, recognizes elected and career officials in Federal, state, or municipal service whose outstanding contributions have promoted the art and science of medicine and the betterment of public health. In addition to Dr. Zimble, this year's recipients included: United States Senators Charles E. Grassley and Max Baucus; A. Drew Edmondson, Attorney General of the State of Oklahoma; the Honorable William Winkenwerder, Jr., M.D., M.B.A., Assistant Secretary of Defense for Health Affairs, Department of Defense; and, the Honorable Vi Simpson, Indiana State Senate.

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USU Professor of Medicine Selected as President of the Alliance for Clinical Education. Louis Pangaro, M.D. Professor of Medicine, Vice-Chairman, Educational Programs, USU SOM Department of Medicine, has been ***selected to serve as President of the Alliance for Clinical Education (ACE), a multidisciplinary group formed, in 1992, to foster collaboration across specialties to promote excellence in the clinical education of medical students***. Its members represent all seven of the national organizations of clerkship directors.

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Partnership Focuses on Compounds to Protect Against Radiation Exposure. The Henry M. Jackson Foundation for the Advancement of Military Medicine (HJF - (*http://www.hjf.org*) has entered into an agreement with USU and Humanetics Corporation to develop and commercialize nutritional supplements and drugs that show promise in boosting the immune system to protect against challenges from exposure to radiation. The primary aim of the program is to screen, develop, and test compounds that could protect from dangerous radiation levels associated with a nuclear incident or terrorist attack. Operating through a unique Master Cooperative Research and Development Agreement (CRADA), USU is conducting the research program through the Armed Forces Radiobiology Research Institute (AFRRI) and the USU School of Medicine. ***AFRRI is the Nation's premier center for radiation injury countermeasure research. AFRRI Director, Colonel David G. Jarrett, MC, USA, pointed out that this project will allow expansion of AFRRI's research.*** It is believed that this program will accelerate the development of new ways to address radiation-related terrorism threats, and may provide a safe, cost-effective means of diminishing radiation injury for large numbers of people. In July of 2004, HJF, USU/AFRRI, and Humanetics entered into their first CRADA to develop a nutritional supplement that will support immune system function. Under this agreement, AFRRI researchers are working with Humanetics to develop a compound to support immune function and to explore the potential benefits of the compound for military personnel. Military service members are often in situations that could present challenges to their immune systems, including chronic stress from psychological and environmental factors, military training, and combat. Recognizing the potential for nutritional supplements to strengthen immune function, AFRRI and Humanetics expanded their efforts by designing and implementing a unique joint research program within AFRRI to screen, develop, and test several nutritional supplements that exhibit such potential. The Master CRADA, unlike a standard CRADA, is not limited to one compound, so it provides the flexibility to rapidly incorporate new candidate compounds into the research program. In addition to roughly 10 million United States military service members and first responders, it is estimated that 90 million civilians in the top 10 metropolitan areas are considered potential victims of a terrorist attack. Humanetics Corporation is a privately-held company headquartered in Minneapolis, Minnesota. The company focuses on delivering proprietary, science-based and clinically-tested solutions to consumer health and aging concerns (*http://www.humaneticscorp.com*).

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USU Chair Oversees the Implementation of a Health Education Campaign. A team of experts in military medicine and health communication at USU have launched a new health education campaign, ***Courage to Care***. In particular, *Courage to Care* is aimed at helping combatants to reintegrate back into their families upon their return from deployment in Iraq and Afghanistan. In general, the campaign is geared toward the entire Department of Defense community: active duty service members; members of the National Guard and the Reserves; their families; and, the health and community providers who serve them. *Courage to Care* consists of ready-to-use fact sheets written for physician providers, as well as servicemen and women, on topics about military life and health. The first two fact sheets are titled ***Reintegration***

Roadmap - Shared Sense of Purpose (for the health and social service provider) and ***Becoming a Couple Again - Creating a Shared Sense of Purpose*** (for military couples experiencing the transition). The content for the series of fact sheets is derived from interviews conducted by USU's professionals with service members and their families who have experienced combat stress and family separation. The fact sheets describe the reintegration challenges and offer a step-by-step process for assisting individuals to re-establish their relationships. Nancy Vineburgh, Assistant Professor, USU SOM Department of Psychiatry, suggested the campaign title to convey the courage of military doctors, psychiatrists and counselors; the fact sheets are concise, contemporary and interesting. The USU-based campaign was conceived by **Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry, Director, USU Center for the Study of Traumatic Stress (CSTS)**. Ursano oversees that the campaign speaks to the multiple stressors faced by families in addition to traumatic stress caused during combat deployment (i.e., taking care of a soldier who has lost his legs or a child with chronic diabetes). Dr. Ursano ensures that *Courage to Care* serves as an extension of USU's work in educating health providers and in enhancing their communication skills with the military family. The fact sheets have been lauded by the Reserve Components, military commanders, and the Office of the Secretary of Defense, Health Affairs.

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USU Researcher Leads One of Two Groups to Independently Publish the Identity of the Human Protein that Facilitates Infection by the Nipah and Hendra Viruses. Two groups have independently published the identity of the human protein that facilitates infection by the Nipah and Hendra viruses. First recognized in the 1990's, these two emerging infectious animal diseases, which are transmissible to humans, are considered possible bioterror agents. In 1994, 15 horses and two humans near Brisbane, Australia, presented with fatal acute respiratory disease. The etiologic agent was named Hendra virus (HeV) and classified in a new genus of the viral family Paramyxoviridae. A Malaysian outbreak of respiratory infections among pigs in 1998 spread to nearly 370 people in the form of a viral encephalitis, killing 105. The identified viral pathogen, named Nipah virus (NiV), was also classified as a paramyxovirus. Though the viral proteins responsible for attachment were identified, no one had yet found the receptor that allows Nipah and Hendra viruses to enter host cells. The new studies point to a cell surface protein, Ephrin-B2, as the mechanism for entry. The protein is present in humans, horses, pigs, bats, and other mammals; this finding is consistent with the wide range of animals susceptible to Nipah and Hendra infection. A team led by **Christopher C. Broder, Ph.D., Associate Professor, USU SOM Department of Microbiology & Immunology,** utilized a microarray screen to narrow down the possible receptors. Working independently, Benhur Lee, M.D., and colleagues at the University of California, Los Angeles (UCLA) identified the receptor using an immunoprecipitation strategy. *Proceedings of the National Academy of Sciences* (PNAS) published the USU group's findings on-line on July 5, 2005. The authors had previously identified a human cell line not susceptible to infection by NiV or HeV. Using microchips embedded with thousands of candidate genes, they compared genes expressed in this resistant cell line to those in cell lines susceptible to viral infection. Twenty-one candidate genes were expressed only in the susceptible cell lines and from this group, the researchers identified the 10 genes expressed most strongly in the susceptible cells. These were transfected individually into the resistant cell line; only Ephrin-B2 caused the resistant cells to become susceptible to infection. Both groups highlighted the close concordance between patterns of Ephrin-B2 and sites of infection. Ephrin-B2 is essential for vasculogenesis and axonal guidance, and is expressed on endothelial cells, neurons and smooth muscle cells surrounding small arteries and arterioles; an expression pattern highly concordant with the known cellular tropism of NiV. The two groups also pointed out the conserved nature of the Ephrin family of cell surface proteins and noted that this could explain the broad range of species susceptible to infection by Nipah and Hendra viruses. Observing that NiV and HeV have been documented in flying foxes, the PNAS article points out that it will be of interest to determine whether

(Ephrin-B2) serves as the virus receptor in these natural animal hosts. There are presently no vaccines or approved therapeutics for NiV or HeV infection. Knowing both the viral and cell proteins involved in fusion will allow scientists to develop vaccines and treatments for these two important emerging infectious diseases. Both studies were funded by the National Institute of Allergy and Infectious Diseases (NIAID).

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USU Surgeon Is the 13th to Receive the Michael E. DeBakey Award. Norman M. Rich, M.D., F.A.C.S., D.M.C.C., Professor and Founding Chair, USU SOM Department of Surgery, joined 12 of the world's most prominent surgeons, during 2004, when he was named the ***Michael E. DeBakey Award Recipient*** by the Michael E. DeBakey International Surgical Society. Dr. DeBakey, an internationally renowned cardiovascular surgeon, medical inventor, medical statesman, and teacher, has trained thousands of surgeons since 1948. In 1977, the Michael E. DeBakey International Surgical Society was founded with the goal of perpetuating DeBakey's vision through scholarship, training and recognition. Dr. Rich, Chair Emeritus and namesake of USU's Norman M. Rich Department of Surgery, was presented the award at the Society's 25th Congress in Houston, Texas, in May of 2004. The award recognized him for his significant contributions to medicine and surgery over the past 40 years, which include the establishment of the Vietnam Vascular Registry and his service as Chairman of the USU SOM Department of Surgery. The Michael E. DeBakey Award is a singular honor bestowed only on the world's most outstanding surgeons. Dr. Rich is the 13th surgeon worldwide to receive the award, a bronze likeness of Dr. DeBakey. Since 1978, the Michael E. DeBakey International Surgical Society has selected a surgeon to receive the award at their biennial meeting, with the exception of 2002. Dr. Rich's ties to DeBakey were formed years ago when he was introduced to the famed physician while an undergraduate student at Stanford University. Dr. DeBakey has been a loyal supporter of USU, serving on the Surgery Department's Visiting Board since the University's establishment; he has also served as Past-President of the USU Surgical Associates and was presented with an Honorary Degree from USU in 1996. Also, a festschrift in honor of Dr. Rich was held in conjunction with the USU Surgical Associates Day on March 26-27, 2004. National and International Surgical Colleagues honored Dr. Rich for his 25 years of service to medical education and patient care as the first Chairman of the USU School of Medicine Department of Surgery. Thirty contributors to the program documented the achievements of Dr. Rich in academics, research, and patient care. ***The World Journal of Surgery*** published these articles in the Spring of 2005.

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USU Faculty Member Provides Workshops on Teaching Medical Students in the Ambulatory Setting. Commander G. Dodd Denton, MC, USN, Associate Professor, USU SOM Department of Medicine, who serves as the **Deputy Director for the Third-Year Clerkships** and as the **Director of the National Naval Medical Center (NNMC) Ambulatory Rotations**, was selected to attend the prestigious Medical Faculty Development Course at Stanford University. Following that training, ***he has conducted several workshops at USU and NNMC focused on training residents in the various learning modules***. During 2004-2005, Dr. Denton was an invited speaker at various sites over the past year, to include: Grand Rounds at the Malcom Grow Medical Center (April 2004) and at a Workshop at the Regional Society of General Internal Medicine Meeting (March 2004) on the topic, ***Teaching Students in the Ambulatory Setting: Help Is Only a RIME Away***; Workshop Leader at the San Antonio Uniformed Service Health Education Consortium Annual Program Directors Retreat (August 2004) on the topic, ***From Product to Process: Measures of Clinical Competency***; and, the National Capital Consortium Course for Program Directors (January 2005) on ***Theory and Practice of Assessment***. Commander Denton was also requested

to present on the topic, ***Medical Student Resource Use and Knowledge Acquisition in the Medicine Clerkship***, at the following events: the 27th Annual Society of General Internal Medicine National Meeting in Chicago, Illinois (May 2004); the 2004 CDIM Annual Meeting held in Nashville, Tennessee (October 2004); and, the 2004 RIME Annual Meeting held in Boston, Massachusetts (November 2004). In January of 2005, he presented ***Theory and Practice of Assessment*** at the National Capital Consortium Course for Program Directors. He also presented the ***Control of Session Module of the Stanford Clinical Teaching Series*** at the National Children's Hospital in February of 2005. In addition, he was invited to speak at the 28th Annual Meeting of the Society of General Internal Medicine National Meeting in New Orleans on the topic, ***Blood Pressure Monitoring into Your Clinical Practice*** (May 2005). Dr. Denton's recent publications, in collaboration with his colleagues in the Department of Medicine as the lead author, include: *A call for the Use of Confidence Intervals with Correlation Coefficients*, Teaching and Learning in Medicine, 2004 Winter, 16(1), pages 111-112; *Is a Faculty Developed Pre-Test Equivalent to Pre-Third Year GPA or USMLE Step 1 as a Predictor of Third-Year Internal Medicine Clerkship Outcomes?*, Teaching and Learning in Medicine, 2004 Fall, 16(4), pages 329-332; and, *A Time and Motion Study of the Effect of Ambulatory Medical Students on the Duration of General Internal Medicine Clinics*, Teaching and Learning in Medicine, 2005 Summer, 17(3), in Press.

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USU Researchers Receive Continuous Funding from the National Institutes of Health. One measure of the success of the USU Research Programs and individual investigators is the length of time for which a researcher has held continuous funding for a given project. A number of University faculty hold grants funded by the National Institutes of Health (NIH) for at least five years. The following individuals hold single grants with continuous NIH funding from five to nine years: **Regina C. Armstrong, Ph.D., Professor, USU SOM Department of APG** (5 years); **Christopher C. Broder, Ph.D., Associate Professor, USU SOM Department of Microbiology & Immunology** (6 years); **Peter D'Arpa, Ph.D., Assistant Professor, USU SOM Department of Biochemistry** (9 years); **Andre T. Dubois, M.D., Ph.D., Research Professor, USU SOM Department of Medicine** (5 years); **Chou-Zen Giam, Ph.D., Professor and Vice Chair, USU SOM Department of Microbiology & Immunology** (8 years); **David S. Horowitz, Ph.D., Associate Professor, USU SOM Department of Biochemistry** (5 years); **Ann E. Jerse, Ph.D., Associate Professor, USU SOM Department of Microbiology & Immunology** (6 years); **Harvey B. Pollard, M.D., Ph.D., Professor and Chair, USU SOM Department of APG** (6 years); **CAPT Gerald V. Quinnan, Jr., M.D., USPHS, Professor and Chair, USU SOM Department of Preventive Medicine and Biometrics** (8 years); **Clifford M. Snapper, M.D., Professor, USU SOM Department of Pathology** (5 years); and, **Ajay Verma, M.D., Ph.D., Associate Professor, USU SOM Department of Neurology** (6 years). **Ishaiahu Shechter, Ph.D., Professor, USU SOM Department of Surgery,** has held a funded grant for 10 consecutive years; **Anthony T. Maurelli, Ph.D., Professor, USU SOM Department of Microbiology & Immunology,** has been funded for 15 continuous years; and, **Robert M. Friedman, M.D., Professor and Chair, USU SOM Department of Pathology,** has been consecutively funded for 16 years. Both **Sharon L. Juliano, Ph.D., Professor, USU SOM Department of APG,** and **Paul D. Rick, Ph.D., Professor and Chair, USU SOM Department of Biochemistry,** have been consecutively funded for 18 years. And, **Alison D. O'Brien, Ph.D., Professor and Chair, USU SOM Department of Microbiology & Immunology,** has been funded for 22 years, while **Brian M. Cox, Ph.D., Professor and Chair, USU SOM Department of Pharmacology,** has been consecutively funded for 23 years. (*Appendix C provides selected examples of billeted and off-campus members of USU Departments and Programs and Department Activities receiving special recognition during 2004/5.*)

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RESEARCH CENTERS AND PROGRAMS.

We will coordinate with other agencies to develop and conduct specialized training for health care professionals in:

- **Disaster and Humanitarian Relief**
- **Weapons of Mass Destruction**
- **Traumatic and Post-Traumatic Stress**
- **Preventive Medicine for Mission Readiness**
- **Force Health Protection and Healthy Lifestyles**

- **USU Strategic Plan,** Goal 1, *Education*, 2003-2004.

We will emphasize research and development relevant to military, Federal, and homeland security needs.

- **USU Strategic Plan,** Goal 3, *Research*, 2003-2004.

Research is Directed Toward Military Requirements. As discussed in the *Strategic Planning* and *Research Administration* sections of Part I of this annual report, the majority of the research programs and projects currently taking place at USU are focused on meeting the needs of the Uniformed Services. Research protocols throughout the SOM study diseases of high military relevance for troop deployment and sustainment. ***During 2004, the USU $2.4 million INTRAMURAL RESEARCH PROGRAM consisted of 66 protocols, 38*** awards for clinical research, and two projects in the areas of educational research. ***USU provided oversight, during 2004, for 13 multi-site, CONGRESSIONALLY FUNDED RESEARCH PROGRAMS; together these 13 programs, funded at $65 million, support more than 180 individual research projects conducted at USU and elsewhere***. Federal agencies such as the National Institutes of Health (NIH), the National Science Foundation (NSF), the Department of Energy (DOE), the United States Army Medical Research and Materiel Command (USAMRMC), and the Office of Naval Research (ONR) support the ***EXTRAMURALLY FUNDED RESEARCH at USU; in 2004, extramural research included 136 projects funded at $58.4 million***. Over 400 active projects, funded at a total of $126 million, continue to explore a wide span of scientific areas, including basic biomedical questions central to the mission of the Military Health System such as: 1) the mechanisms, transmission and control of a wide range of infectious and/or common diseases that may be faced by warfighters; 2) a variety of crucial topics in combat casualty care, operational medicine, and health education and promotion; 3) women's health issues in the DoD; and, 4) the development of new methods for the diagnosis and treatment of medical problems faced by the United States military and their dependents.

The understanding gleaned by USU's military relevant research is opening avenues to better ensure medical readiness and quality care under austere circumstances. For example, a USU trauma surgeon and his research team ***evaluated a number of agents to control bleeding from wounds on the battlefield, leading to the development and fielding of QuikClot, which is now included in a new aid bag***; over 15,000 bags have been issued to Marines deployed in Iraq. A USU off-campus faculty member worked with a USU-based team and ***developed body-armor that is currently fielded, utilized in combat zones, and saving countless lives***. USU faculty and SOM alumnus are leading the Army's Regional Anesthesia Pain Management Initiative and have ***performed the procedure at the 31st Combat Support Hospital in***

Baghdad; regional anesthesia allows continuous access for local anesthetic to control pain and is being used on the battlefield and in support hospitals to provide continuous pain control from the point of injury through extended evacuation to Germany and the United States. And, the USU Center for the Study of Traumatic Stress (CSTS) ensures the continued provision of critically required military-unique, medical expertise and consultative support relevant to the traumatic impact of CBRNE-related incidents and combat casualties. ***In 2005, CSTS launched its Courage to Care Campaign for the provision of critically required, just-in-time fact sheets relevant to deployed forces and uniformed personnel throughout the MHS.***

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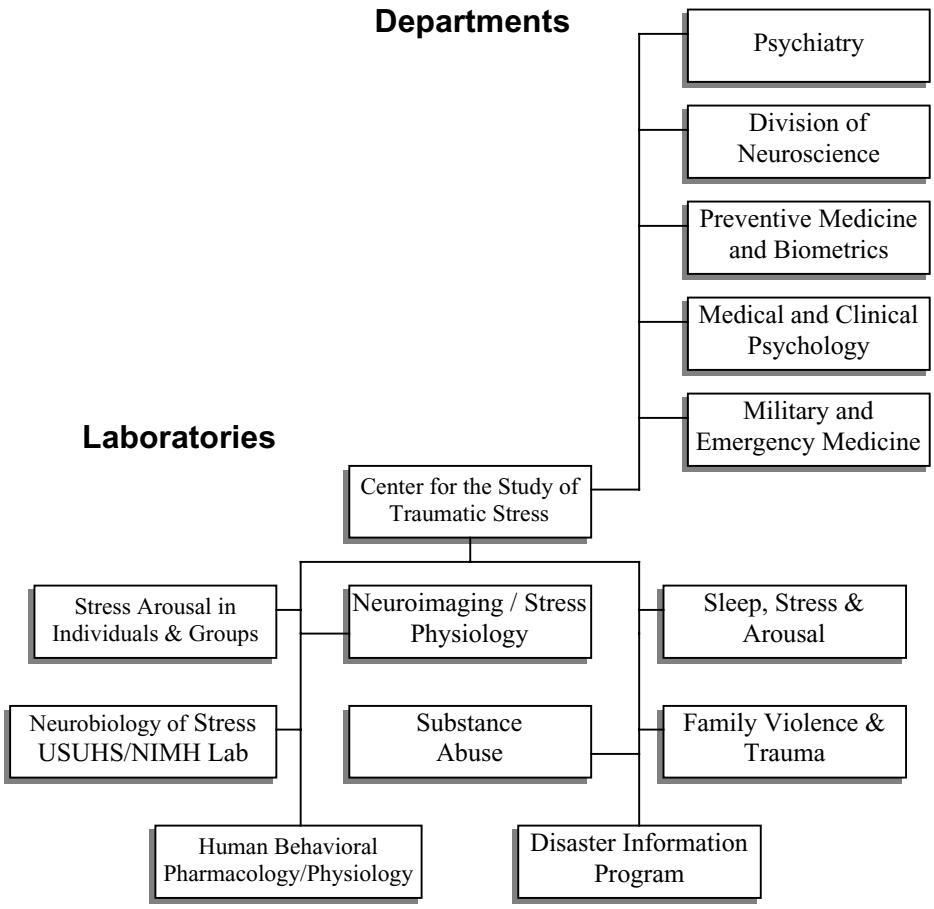
The following SOM Centers, Activities, and individual researchers are provided as selected examples of the research and consultative services taking place throughout the School of Medicine. *(See Appendix C for Additional Examples of Individual Achievements and Recognition.)*

SELECTED PROFILES OF SOM CENTERS AND PROGRAMS

USU School of Medicine Department of Psychiatry and the Center for the Study of Traumatic Stress.



Establishment. The USU Center for the Study of Traumatic Stress (CSTS) was established in 1987, as a center of excellence for responding to DoD's long-term concerns over the substantial health risks resulting from the traumatic impact of: 1) the possibility, or actual use, of weapons of mass destruction (WMD) during combat, acts of terrorism or hostage events; 2) combat, peacemaking, peacekeeping, and operations other than war; 3) natural disasters such as hurricanes, tornadoes, or floods; and, 4) more common stress producing events such as physical assaults and motor vehicle, shipboard, or airplane accidents in both the uniformed and civilian communities. As the Academic Health Sciences Center for the Uniformed

Services, the University is well situated to assist in meeting the needs of the Military Health System (MHS) and of the Nation in the area of ***traumatic stress***.

At present, investigators from the four USU SOM Departments of Psychiatry, Preventive Medicine and Biometrics, Military and Emergency Medicine, and Medical and Clinical Psychology, and the SOM Division of Neuroscience are collaborating on extensive studies on traumatic stress. The CSTS scientists are involved in a wide range of projects including responses to natural, man-made, and environmental disasters; the studies examine community responses to loss of life and property, community displacement, and organizational leadership. In addition, the CSTS research projects involve the examination of the physiological changes after trauma and the neurobiology of stress. Since its establishment, the CSTS has provided education and consultation to: the Armed Forces; the Department of Veterans Affairs; the Department of State; the Central Intelligence Agency; the National Aeronautics and Space Administration; the Institute of Medicine; the National Transportation Safety Board; the National Institute of Mental Health; the American Medical Association; the American Psychiatric Association; the American Psychological Association; the American Red Cross; the World Health Organization; the Disaster Stress Center of the University of Oslo, Norway; the Traumatic Stress Center of the Hadassah Medical Center in Jerusalem, Israel; and, the Italian Ministry of Health.

The chaos that occurs when lives are thrown into the turmoil of terrorism and disaster has a structure that becomes increasingly evident through research, clinical work, and related community concerns. Further understanding of the consequences of terrorism and disaster will aid leaders and health care providers in planning for such events.

- **Robert J. Ursano, M.D., Professor and Chair, Department of Psychiatry, Director, Center for the Study of Traumatic Stress, USUHS,** Terrorism and Disaster: Individual and Community Responses to Extraordinary Events, Cambridge University Press, 2003.

The last quarter of 2001 validated the *reason d'etre* of the CSTS, when ***military unique expertise in disaster mental health and trauma research in terrorism and bioterrorism were recognized as being essential to national security***. Federal and State leaders, as well as the public health and mental health care systems, teaching institutions, and media outlets were seeking to understand the traumatic impact of *9/11*, the anthrax attacks, and the traumatic anxiety generated by those events. CSTS quickly assumed a leadership position in responding to these contingencies and in advising Federal and State leaders on recovery and resiliency; CSTS has continuously sustained its critical support in the form of education, training conferences, research and published work addressing population-based trauma. ***By the end of 2003, CSTS leadership had been instrumental in developing and advancing a national strategy that integrates mental health into a public health paradigm for terrorism management and response.*** This new model is of substantial consequence as it demonstrates how ***disaster psychiatry***, *a singular specialty significantly contributed to by the forging of military medicine and USU faculty health care leaders in the 1980's*, has become a recognized, valued and integral component for strengthening homeland security in the 21st Century.

USU is home to an internationally recognized Center for the Study of Traumatic Stress (CSTS) which ensures the continued provision of critically required medical expertise and consultative support relevant to the traumatic impact of combat, CBRNE-related incidents, crisis management, disaster response, and homeland defense. In collaboration with the Institute of Medicine, the CSTS was instrumental in developing a national strategy for integrating mental health into a public health paradigm for terrorism management and response. CSTS also participated in the NATO-Russian Advanced Scientific Workshop on Planning for Bioterrorism and consulted with the World Health Organization on issues related to bioterrorism and mental health. In 2004, CSTS conducted a workshop examining USU's military medical curriculum and the experiences of military physicians in Afghanistan and Iraq. Subsequently, the center launched its *Courage to Care* campaign for the provision of just-in-time fact sheets relevant to deployed forces, uniformed personnel throughout the Military Health System, and the general public. CSTS fact sheets were widely used by deploying disaster response teams following the *Tsunami of December 2004* and have supported health care professionals around the globe.

- **USU Board of Regents**, 2005 Report to the Secretary of Defense, June 22, 2005, pages 18-19.

Mission. Today, CSTS is well positioned within the MHS and continues to increase the military's medical knowledge (in the areas of epidemiology, psychology, neurobiology, health care systems and treatment) of the consequences of bioterrorism, trauma, and disaster *and to apply that knowledge* in addressing the real world problems, issues, and requirements of homeland defense, the response to terrorism and disaster, and humanitarian assistance. **Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry, serves as the Director of the CSTS.**

Preservation of Lessons Learned. The health implications of traumatic stress are a focused interest immediately following each traumatic event or disaster, but the data tends to be lost from institutional memory because of the lack of an organized center for the maintenance and development of the resulting information. The USU CSTS has served the Military Health System by capturing, organizing, and maintaining relevant information following disasters, terrorist events, and wars. ***The Center's PROCITE database of citations and full text materials on trauma, disaster, terrorism, and combat has over 19,000 references that can be accessed for the most current information and recommendations on these topics. This database rivals any trauma specialty knowledge resource or library in existence.*** It is this data base that enabled the CSTS to effectively respond, since September 11, 2001, to the traumatic stress resulting from the terrorist acts of war against our Nation. The CSTS conducts research on the neurobiology of traumatic stress and is studying the psychological and behavioral responses to such events as the attack on the *USS Cole* in October of 2000, the attacks on the Twin Towers and the Pentagon in September of 2001, the October 2002 Sniper attacks in the Washington, D.C. area, and the on-going war in Iraq. Additional information is available at <*http://www.centerforthestudyoftraumaticstress.org/*>.

Core Military Competency. The location of the CSTS within the multi-Service environment of USU, with its emphasis on education and development, studies, research, and on-going clinical and operational practice is critical to the development and sustainment of CSTS's ability to provide its ***CORE COMPETENCY - the capability to ensure the continued provision of critically required military-unique, medical expertise and consultative support in response to the impact of traumatic stress during***

and following activities related to crisis management, disaster response, and homeland defense. The successful assessment and management of the behavioral, psychological, and social consequences of WMD-related and other national security contingencies is essential to DoD during the organization of effective responses to such events. Failure to attend to the consequences of WMD may lead to heightened stress or demoralization and could undermine the confidence of the Armed Forces and American citizens in their government and its institutions. Only DoD has a self-renewing source of physicians and other medical personnel with interest and experience in these areas. USU, through its students in the School of Medicine, the Graduate School of Nursing and Graduate Education Programs, and its career-focused faculty and staff, plays a vital role for the DoD in the renewal process of militarily-focused and experienced health care providers in the study of traumatic stress. *The Center's unique military medical capability to assess and manage the traumatic impact of WMD and other disaster-related contingencies provides direct support to Homeland Security and Defense*.

Areas of Study. ***Ten major projects are currently funded with well over seven million dollars*** from the following sources: the Department of the Army; the National Institute of Mental Health; the National Alliance for Research on Schizophrenia and Depression; the National Alliance for the Mentally Ill Research Institute; the National Institute on Drug Abuse; the Substance Abuse and Mental Health Services Administration of the Department of Health and Human Services; the Stanley Foundation; and, the United States Marine Corps. ***Ongoing studies include the following areas:*** psychological and behavioral responses to weapons of mass destruction; cognitive-behavioral treatment of women with posttraumatic stress disorders; brain imaging of patients with stress disorders following motor vehicle accidents; stress responses to urban sniper attacks; web-based intervention for victims of mass violence; deployment stress; psychiatric consequences of injury in the Iraq War; online risk communication training for primary care providers; efficacy of serotonergic agents in the treatment of stress disorders; stress from handling human remains; and, others. ***Recently funded studies include:*** guidelines for assessing and measuring community resilience; workplace preparedness for terrorism; weapons of mass destruction education; family violence and trauma; stress among emergency workers after an air disaster; combat, deployment, contingency operations, and trauma; basic neurobiology of genetic and second messenger stress responses; stress and arousal symptoms in individuals and groups using the Persian Gulf War symptoms as a paradigm; disaster psychiatry education; natural disasters and health outcome: adult and adolescent responses to Hurricane Andrew; genetic risk for substance abuse and cognitive processing; animal models for the study of the neurobiology of trauma responses and depression; and, the development of a strategic plan for the management of mass violence in the workplace.

Focus of the Nine CSTS Laboratories. The CSTS has nine research laboratories that concentrate on the following areas of study: 1) stress and arousal in individuals and groups; 2) neuroimaging/stress physiology; 3) sleep, stress and arousal; 4) social function in high stress environments; 5) neurobiology of stress; 6) family violence and trauma; 7) human behavioral pharmacology/physiology; 8) substance abuse; and, 9) disaster information.

Activities During 2004/5. The CSTS continued to provide consultation, education and research advances in the field of trauma spectrum responses to extreme environments and events including individual trauma, disasters, terrorism, and combat. The Center has studied over 20,000 individuals including civilian and military populations, victims, families, communities, first responders, police, firefighters, World Trade Center disaster workers, body handlers, and health care personnel related to airplane disasters, earthquakes,

hurricanes, typhoons, and various terrorist attacks (i.e., bombings, anthrax, sniper, etc.). Based upon this knowledge and experience, the CSTS successfully engaged in multiple activities during the past year.

***CSTS Leadership and Expanding National and International Recognition*. Doctor Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry,** and **Director of the CSTS,** served on the Institute of Medicine Committee on Responding to the Psychological Consequences of Terrorism. His military unique expertise was instrumental in developing and advancing a national strategy that integrates mental health into a public health paradigm for terrorism management and response. This new model is of substantial consequence as it demonstrates how disaster psychiatry has become recognized, valued and regarded as an integral component for strengthening homeland security in this Century. The Committee's recommendations have been published in Preparing for the Psychological Consequences of Terrorism: A Public Health Strategy, the National Academies Press, Washington, D.C., 2003.

The CSTS expanded and applied the new model described above and benefited the readiness mission of the MHS through the establishment of the ***Nation's first Disaster and Preventive Psychiatry Fellowship***, which was awarded to **Colonel Elspeth Cameron Ritchie, MC, USA,** an Army psychiatrist. Under the mentorship of the USU CSTS faculty, Lieutenant Colonel Ritchie established an international presence for USU by working in Israel, Egypt, Baghdad, and Iraq, with psychiatrists from the State Department, to improve mental health assessment and interventions following terrorism intrinsic to the war in Iraq. Doctor Ritchie coordinated a planning meeting, which was held at USU, with representatives from the State Department; the National Institute of Mental Health, the Substance Abuse and Mental Health Services Administration; the World Bank; and, Non-Governmental Relief Organizations on the DoD mission and objectives for assisting in rebuilding a mental health system in Iraq.

CSTS Director, Robert J. Ursano, M.D., also chaired the American Psychiatric Association Work Group on Acute Stress Disorder and Post Traumatic Stress, which published the 13th APA practice guideline, ***Practice Guideline for the Treatment of Patients with Acute Stress Disorder and Posttraumatic Stress Disorder***, in November of 2004. During an interview with Psychiatric News, Doctor Ursano noted that the guideline is built from the best evidence-based and clinical-practice knowledge that one could ever imagine assembling. With the present concerns of the Nation over terrorism and the need for all clinicians to be able to help those who experience the ravages of a motor vehicle accident, a rape, or a war, this guideline can assure practitioners that they are using the best possible treatment for their patients. The work group reviewed hundreds of articles and research on posttraumatic stress disorder and acute stress disorder in order to publish the 13th APA practice guideline.

Recognition of the international stature of the CSTS also occurred during the international response to the Tsunami Disaster in January of 2005. **The CSTS offered *Just-in-Time Training* to field workers and teams deploying on a variety of missions including the Center for Disease Control's Morgue Mission in support of body recovery following the Tsunami Disaster**. In February of 2005, the CSTS also trained health care providers and scientists volunteering for PROJECT HOPE on the *UNS MERCY*, a 1,000 bed hospital ship traveling to the Tsunami impacted nations. The CSTS team of scientists produced invaluable ***Fact Sheets***, which were posted on the CSTS website for worldwide dissemination. A ***Push-Pack*** of educational materials was written and assembled in response to the Tsunami, which included up-to-date information on the health risks of body recovery, mitigation of psychological stressors for body handlers, grief leadership, and the unique circumstances of missing and unrecovered remains for family and loved ones, to include complicated bereavement. ***These definitive information and practical knowledge resources were provided to psychiatrists and mental health workers in Sri Lanka, Norwegian and***

Scandinavian government teams working with families whose relatives were dead or missing, Australian Trauma Teams, and international academicians in the field of trauma and disaster.

Collaboration Throughout the Military Health System. Throughout the past year, **Lieutenant Colonel David M. Benedek, MC, USA, Associate Professor, USU SOM Department of Psychiatry, CSTS Scientist,** and **Colonel Elspeth Cameron Ritchie, MC, USA, CSTS Military Disaster Psychiatry Fellow,** provided on the ground consultation to Mental Health Assessment Teams (MHAT) deployed to Iraq. At the request of the Surgeon General of the Army, in September of 2004, Doctor Benedek travelled to Iraq to provide recommendations for medical and mental health care for persons detained by the United States in the Global War on Terror. In addition to specific recommendations for medical and mental health treatment and staffing in military detention facilities, ***his efforts strengthened a consultative relationship between medical personnel in the combat theater and psychiatric consultants at USU***. He also participated in efforts to enhance the Ethics Training Program for troops preparing to deploy as medical providers for Prisoners of War and other detainees.

The Center's ***Family Violence and Trauma Project (FVTP)*** entered its ninth year in October of 2004, and is led by **James E. McCarroll, Ph.D., Research Professor**. The Center's FVTP provides support to Command including the Army Community and Family Support Center Headquarters and Staff; the Headquarters, Department of the Army Family Advocacy Committee; the Family Advocacy Research SubCommittee; Family Advocacy Program Managers; Chiefs of Social Work Services; and, Army Social Workers. The FVTP has provided immediate responses, briefings, papers, and staff studies to the Headquarters Department of the Army Family Advocacy Program Managers and the Family Advocacy Research SubCommittee reference issues involving the scientific and medical aspects of child and spouse abuse. During 2004, the FVTP continued to add to its scientific literature data base of family violence articles. This data base is used for scientific reference to improve the development of family violence research protocols and to further the research education of Army military and civilian research social workers. Many of these articles have been sent to investigators and program managers in the Army's Family Advocacy Program (FAP) and FAP-related programs such as the military police school for teaching police to respond to incidents of family violence. The FVTP has additionally redesigned its quarterly newsletter, Joining Forces, Joining Families, allowing worldwide electronic distribution.

In July of 2004, CSTS faculty led by **Colonel Molly J. Hall, USAF, MC, Associate Professor, USU SOM Department of Psychiatry,** and **Carol S. Fullerton, Ph.D., Research Associate Professor, USU SOM Department of Psychiatry,** convened a workshop on ***War Psychiatry Today: Lessons from OEF and OIF***. The workshop examined the experience and preparation of military physicians for combat support in the Global War on Terror. Workshop goals were to identify gaps in current medical training in order to: 1) better prepare physicians to give appropriate mental health care in light of the complexities posed by modern warfare; 2) understand the new challenges that modern warfare places on psychiatrists at all levels of care, from the combat zone through the return to the United States; and, 3) define needs for mental health support in the rehabilitation and reintegration of the wounded back into their units and society. ***This educational activity reflects CSTS's on-going commitment to training future medical officers who will lead the Uniformed Services Medical Corps and Care for those in Harm's Way, in accordance with the USU mission and strategic plan***.

USU's electronic health promotion campaign, ***Courage to Care***, located at <*www.usuhs.mil/psy/courage.html*>, was launched during 2004. This health information campaign was developed by USU military health experts: **Captain Derrick A. Hamaoka, USAF, MC, Instructor, USU SOM Department of Psychiatry**; **Lieutenant Colonel David M. Benedek, MC, USA, Associate Professor,**

USU SOM Department of Psychiatry; **Colonel Molly J. Hall, USAF, MC, Associate Professor, USU SOM Department of Psychiatry**; **James E. McCarroll, Ph.D., Research Professor**; and, **Ms. Nancy Vineburgh, Director, CSTS Office of Public Education and Preparedness**. The campaign serves the Nation's Active Duty, Guard and Reserve Components, their families, and health care professionals serving the military community and the Nation. Fact sheets, which include such topics as: ***Reintegration****: Becoming a Couple Again*; ***Caring for Children During Flu Season***; and, ***Psychological First Aid****: Helping Victims in the Immediate Aftermath of a Disaster*, were electronically published and distributed throughout the Department of Defense and civilian academic centers. The program's timely, relevant, attractively packaged information has been recognized and widely applauded at all levels, from senior commanding officers to the spouses of junior enlisted service members. The program was highlighted on August 24, 2004 in an article in Armed Forces Press, *Courage to Care Launches Help for Returning Combatants, Families*. In November of 2004, American Forces Press Service featured the CSTS campaign in *Courage to Care Helps Redeploying Soldiers*; and, on January 21, 2005, American Psychiatric Association News also published *Military Helps Civilian Psychiatrists Respond to Soldiers, Families*. The program is an on-going initiative with future editions planned to address the experiences of the Reserve and Guard Components, helping children and adolescents cope when a parent deploys, and women's health care in austere environments.

National and International Educational Activities. A series of continuing medical education (CME) scenarios written for primary care and mental health providers, ***Terrorism and Disaster: What Clinicians Need to Know***, represents another major educational initiative, developed during 2004, in collaboration with the USU SOM Department of Medicine and the RUSH University Medical Center in Chicago, Illinois. CSTS faculty, **Colonel Molly J. Hall, USAF, MC, Associate Professor, USU SOM Department of Psychiatry**; **Lieutenant Colonel David M. Benedek, MC, USA, Associate Professor, USU SOM Department of Psychiatry**; **Lieutenant Commander Benjamin W. Jordan, MC, USNR, Assistant Professor, USU SOM Department of Psychiatry**; **Captain Derrick A. Hamaoka, USAF, MC, Instructor, USU SOM Department of Psychiatry**; and, **CAPT Thomas Grieger, MC, USN, Associate Professor, USU SOM Department of Psychiatry**, co-authored ***case presentations*** on the *Impact of the World Trade Center Attacks*, *Suicide Bombings*, *Sarin Gas Attacks*, *Anthrax Attacks*, *Dirty Bomb and Radiation Attacks*, and *Bioterrorism Attacks with Infectious Agents such as Smallpox and Viral Encephalitis*. The first of the series, by Doctors Hall and Hamaoka, ***Psychiatric Sequelae in a Survivor of 9/11***, was published in January of 2005. These articles offer innovative and interactive educational experiences and continuing educational credits for the Nation's primary care physicians and mental health providers, to enhance preparedness and emergency medical response. In another Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE) education project, Doctor Thomas Grieger and Doctors Carol Fullerton, Molly Hall, Robert Gifford, and Ms. Nancy Vineburgh are coordinators on a proposal to develop web based learning for health care workers, first responders, and leaders on the effects of, and responses to potential chemical, biological, and radiologic terrorist events. Pilot posting of this site is projected for January of 2006.

In June of 2003, CSTS created an ***Office of Public Education and Preparedness (OPEP)*** under the direction of **Nancy T. Vineburgh, Assistant Professor, USU SOM Department of Psychiatry,** a recognized expert in corporate health promotion and public education on mental health issues. This new office is charged with identifying programs and partnerships that will advance CSTS and USU visibility, expertise, and funding for preparedness programs, especially in the workplace. OPEP objectives include the expansion of CSTS' role in education, consultation, and training provided to the Nation's workplaces and schools and the DoD community. Activities of the OPEP include numerous educational presentations to national CEOs and business leaders, corporate security and workplace health and productivity professionals advancing an understanding of psychological and behavioral issues. Building upon CSTS expertise, these

presentations have resulted in consultation and educational programs with the CDC, NIOSH, the FBI, the United States House of Representatives and Senate Employee Assistance Programs, and the Division of Transportation Security in the Department of Homeland Security. The OPEP Director also published *The Power of the Pink Ribbon: Raising Awareness of the Mental Health Implications of Terrorism* in Psychiatry Interpersonal and Biological Processes, Summer, 2004, as part of a special edition devoted to the trauma and response to the 9/11 attacks. In addition, OPEP Director and CSTS scientists received funding from the Sloan Corporation, in 2004, to conduct a pilot study on corporate organization views and activities reference preparedness for terrorism and other related critical incidents; this work began in 2005. ***The OPEP also worked with the CSTS faculty to introduce a health promotion campaign for the DoD community to enhance healthy lifestyles for families.*** A *Holiday Homecoming Fact Sheet*, which received excellent feedback, has led to a USU-wide promotion campaign launched in 2004. As discussed earlier, the *Courage to Care* campaign is positioning USU as one of the leaders in uniformed health care education within the DoD community.

CSTS has made great strides in educational initiatives involving national and international agency collaboration on: training health care professionals in disaster and humanitarian relief; understanding the traumatic consequences of weapons of mass destruction; and, innovative public education programs reaching new audiences and enhancing force health protection and healthy lifestyles. **The CSTS sponsors trauma and disaster-related fellowship programs, to include the Visiting Science Fellowship Program and the Military Psychiatry Fellowship Program**. Graduates of these programs serve as catalysts for research, educational, and clinical programs throughout the World. Beginning in 1998, when the Center sponsored a visiting scientist from the Japanese National Defense Medical College, the ***CSTS International Training Programs*** have hosted a total of ten scientists from numerous nations, to include: Japan; Singapore; Greece; Korea; Germany; the Republic of Georgia; Italy; and, Israel.

Consistent with the DoD requirement to provide behavioral health expertise for mass casualty responses, population-oriented behavioral health programs, and behavioral health epidemiology, the Department of Psychiatry and the CSTS developed a new two-year ***Disaster/Preventive Psychiatry Fellowship*** sponsored by the National Capital Consortium and approved by the United States Army. The program matriculated its first Fellow in the Summer of 2003. In addition to applying through the established Graduate Medical Education route, candidates must also apply to the USU SOM Graduate Education Programs and be accepted by the USU Master of Public Health Program for their first year. The second year is spent with the Department of Psychiatry's CSTS and includes didactic experience, research, and rotations at other institutions.

Colonel Elspeth Cameron Ritchie, MC, USA, the *first* CSTS Disaster Psychiatry Fellow, established an international presence working with State Department psychiatrists to improve plans for mental health interventions following the terrorist attacks in the United States. She presented in Israel on current efforts to respond to the mental health requirements due to the impact of terrorism and attended meetings in Egypt and Baghdad, Iraq, on assessing the mental health requirements and resources of Iraq. In July of 2003, the CSTS sponsored a meeting of national and international leaders at USU to identify the mental health care needs and requirements in Iraq.

Carol S. Fullerton, Ph.D., Research Associate Professor, USU SOM Department of Psychiatry, CSTS Scientific Director, supervised the educational experiences of the CSTS International Disaster Psychiatry Fellow from Japan (the Japanese Defense University) as part of CSTS' International Training Programs.

Jun Shigemura, M.D., CSTS International Disaster Psychiatry Fellow from Japan, was involved in research and humanitarian work with the United States Embassy of Japan and the Japanese Americans' Care Fund, a non-profit organization for Japanese Americans, to study relocation stress and mental health outcomes among Japanese residents in the Washington, D.C. area. He is a founder and a chair for the *DC Japanese Mental Health Network*, a voluntary network of regional Japanese-speaking mental health professionals. Doctor Shigemura also presented the results of the *CSTS Disaster Worker Study* in Tokyo, Japan, in March of 2004.

Major Isra Rukskul, M.D, of the Royal Thai Army Hospital and the Phramongkutklao (PMK) College of Medicine, joined the CSTS team, in April of 2005. Doctor Rukskul will study military and disaster psychiatry within the fellowship for one year. Through this international collaboration and sharing of medical expertise in disaster work, the goal is to expand the PMK's curriculum and to allow for the development of a CSTS-like facility, in Thailand.

Raffaella Querci Daniore, M.D., CSTS Scientist and Member of the Italian Society of Psychiatry, joined the team in October of 2004. Doctor Daniore has collaborated on numerous studies.

CSTS scientists and faculty are in great demand to give presentations and grand rounds on trauma, disaster and terrorism topics both nationally and internationally. For example, in 2004/5, **Colonel Molly J. Hall, USAF, MC, Associate Professor, USU SOM Department of Psychiatry,** presented two lectures at the ***World Psychiatric Association Meeting held in Florence, Italy, in November of 2004***. The first lecture on Terrorism, Mental Health and Public Health, was based on the Institute of Medicine 2003 Report, *Preparing for the Psychological Consequences of Terrorism: A Public Health Strategy*. The second lecture was centered on Workplace Preparedness Education and Resilience and based on publications from CSTS faculty, scientists, and the CSTS Office of Public Education and Preparedness. The lecture included a focus on sustaining operations and protecting the workforce in the event of a natural disaster or terrorist attack. **Lieutenant Colonel David M. Benedek, MC, USA, Associate Professor, USU SOM Department of Psychiatry,** presented at the 2005 TRICARE Conference on Operational Medical Ethics and Detainees; he was also asked to present at the *2005 IDGA Conference on Assessment and Treatment of Emotional Response to War Trauma* and at the *2005 USAEUR Conference* on a variety of topics including medical ethics, treatment of PTSD, and health care workers' response to war, terrorism, and disaster.

Community/State Activities. The ***CSTS and Mrs. Everett Alvarez met with the Governor of Maryland, Robert Ehrlich, on October 5, 2004, at the State House in Annapolis to celebrate Maryland's official Proclamation of National Resiliency Day, which will be recognized annually on September 11th***. USU and the CSTS were recognized for spearheading the event. Maryland was the first state to designate a National Resiliency Day to commemorate the strengths of its citizens, communities and public and private institutions that bounced back from the adversity of September 11th and its aftermath. It is expected that Resiliency Day will serve as a catalyst for individual, organizational and community preparedness. Participants from USU and the CSTS included: **The Honorable Everett Alvarez, Jr., J.D., Chairman of the Presidentially-appointed USU Board of Regents**; **Mrs. Thomasine Alvarez, President of the Friends of USU**; **Robert J. Ursano, M.D., Professor and Chair, USU SOM Department of Psychiatry, Director, CSTS**; **Lieutenant Colonel David M. Benedek, MC, USA, Associate Professor, USU SOM Department of Psychiatry;** and, **Ms. Nancy Vineburgh, Assistant Professor, USU SOM Department of Psychiatry, Director, CSTS Office of Public Education and Preparedness**. National Resiliency Day grew out of a meeting and mutual interests between Mrs. Alvarez and the CSTS. Mrs. Alvarez, an advocate for national programs and values that promote strength, social cohesion and human continuity, pursued the

idea with the State of Maryland, whose Governor officially proclaimed National Resiliency Day in the State of Maryland on September 11, 2004.

Expanding community outreach on resiliency and disaster, the CSTS developed a traveling exhibit, ***Our Nation's Resiliency:*** *Paintings, Public Education and Preparedness for Terrorism*. This exhibit will be on display in the Russell Rotunda of the United States Senate, the Rayburn Foyer of the United States House of Representatives, the Italian Embassy, and the National Museum of Health and Medicine, during late 2005 and early 2006.

(*CSTS publications are listed at Appendix C, under the USU SOM Department of Psychiatry.*)

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The USU School of Medicine Department of Preventive Medicine and Biometrics, Graduate Education in Preventive Medicine and Public Health, and the Centers for Preventive Medicine and Public Health.

Graduate Education in Preventive Medicine and Public Health.

USU's Public Health Program, with its emphasis on community health, ranks sixth in the Nation according to U.S. News & World Report's *2004 rankings of America's Best Graduate Schools*... USU's program ranked just below Tufts University, the Medical College of Wisconsin, Northwestern University, Oregon State University and the University of Rochester on the list of the top 10 community health master or doctorate programs (*since this article was published in 2003, the USU Masters/Doctoral Programs in Community/Public Health have been ranked 6th in the Nation in the 2004, 2005, 2006 Directories of America's Best Graduate Schools*).

- USU Medicine, *U.S. News & World Report Ranks USU Graduate Programs in Top Six*, Fall 2003, page 5.

The SOM Department of Preventive Medicine and Biometrics (PMB) offers programs of study leading to the Master of Public Health (MPH), Master of Tropical Medicine and Hygiene (MTM&H), Master of Science in Public Health (MSPH), Doctor of Public Health (DrPH), and Doctor of Philosophy (Ph.D) in Medical Zoology and Environmental Health Sciences. Between 1983 and April of 2005, 520 individuals have earned the following graduate degrees: MPH - 457; MSPH - 8; MTM&H - 28; MS - 1; DrPH - 15; and, Ph.D - 11. During 2004, 43 candidates in the PMB Department were awarded advanced degrees: 2 Doctors of Philosophy; 3 Doctors of Public Health; 37 Masters of Public Health; and, 1 Master of Science in Public Health. The PMB Department has continued to attract candidates for its graduate degree programs, which are of particular relevance to the Uniformed Services. ***Fifty students are currently enrolled*** in the Master and Doctoral Programs. ***The mission of the PMB Graduate Programs in Public Health is to enhance and protect the health of members of the Uniformed Services by producing knowledgeable and highly skilled public health professionals and by promoting evidence-based policy making, research, and service initiatives that support the global mission of the Uniformed Services.*** The PMB Department has sought to be responsive to the needs of its customers in the DoD and the United States Public Health Service; and, this is reflected in the types of programs and training offered at USU. PMB has continued its collaborative educational agreements with the Walter Reed Army Medical Center Preventive Medicine Residency Program and Internal Medicine Fellowship Program, the Army Program for Training in Health Services Administration, the Army Laboratory Animal Medicine Program, the Navy Dental Research Institute Program in Dental Public Health, and the Indian Health Service Environmental Health Training Program. In addition, the PMB Department remains affiliated with the United States Army and Navy Overseas Biomedical Research Laboratories located in: Bangkok, Thailand; Rio de Janeiro, Brazil; Nairobi, Kenya; Cairo, Egypt; Jakarta, Indonesia; and, Lima, Peru. These overseas laboratories provide excellent opportunities for students in the MTM&H Program, which includes a six-week overseas clinical experience in tropical medicine. A research program also exists under an agreement with the Ministry of Health in Belize.

Demographics of the Graduate Program in Public Health. The class composition, as of April 2005, reflects a wide range of backgrounds and experience among the ***50 students*** currently enrolled in either the Masters or Doctoral Programs. The ***27 Masters Degree students in the MPH and MTM&H Programs*** include: 18 Physicians (17 uniformed officers and 1 civilian); 4 Veterinarians (2 Air Force Public Health Officers and 2 Laboratory Animal Medicine Residents); 1 Environmental Science Officer; 2 Aerospace Physiologists; 1 civilian (undergraduate biology major); and, 1 civilian Nurse-midwife. The ***13 students in the MSPH Program*** include 7 Air Force Bioenvironmental Engineers; 3 Health Physicists (2 Air Force, 1 Navy); and, 3 Industrial Hygienists (2 Army, 1 Navy). These programs are designed for students with at least three years of experience in a health-related field. Residents in General Preventive Medicine/Public Health (GPM) and Occupational and Environmental Medicine (OEM) take courses and meet all of the requirements for the MPH or MTM&H Degrees during year one of their residency training. Nine of the 27 MPH/MTM&H students are in the USU GPM or OEM Residency Programs. The ***10 Doctoral students*** include 6 Doctor of Public Health students/candidates (1 uniformed officer, 5 civilians) and 4 Doctor of Philosophy candidates (all uniformed officers). The Program Director can be contacted by e-mail at <*www.usuhs.mil/pmb/pmb.html*>.

Accrediting Entities. Given the mission of USU and the importance of prevention to uniformed medicine, the USU SOM Department of PMB is a large and vital part of the medical school and the University. In addition to accreditation by the ***Middle States Commission on Higher Education*** as a Department within the SOM, the PMB graduate programs are nationally accredited by the ***Council on Education for Public Health (CEPH)***. CEPH is the recognized accrediting body for Schools of Public Health and Graduate Programs in Community Health Education and Preventive Medicine/Community Health. The PMB Graduate Programs were initially accredited by CEPH in 1985 and were last reviewed in 1998. As part of the CEPH report following the last site visit in June of 1998, it was noted that *the values of the institution and the philosophy of military medicine are an exceptionally good fit with the values and philosophy which underlie public health and preventive medicine. The program has strong ties to the military community, both locally and worldwide, and the instructional programs have particular relevance to the needs of the Uniformed Services to which the program graduates will return after their training. The curriculum is quantitatively-oriented and rigorous*. The PMB Graduate Programs are fully accredited through 2005. Currently, the faculty is in the final stages of a self-study and is scheduled to host site visitors in November of 2005.

The PMB Department has continued to embrace on-going review and evaluation for continuous quality improvement, including efforts to identify measurable program outcomes. *In addition to the rigorous, quantitatively-focused curriculum (60 credit hours), students are required to complete a 108-hour practicum experience, as well as an independent project for the MPH or MTM&H Degrees*. Greater emphasis has been placed on basic research methodology and students are encouraged to present the results of their independent projects at scientific meetings and to prepare manuscripts for submission to peer-reviewed journals. The **Director, Graduate Programs, Colonel Gary D. Gackstetter, DVM, MPH, Ph.D., BSC, USAF, Associate Professor and Vice Chair for Graduate Education, USU SOM Department of PMB,** retired from active duty during 2005.

In response to the CEPH requirement for a practicum or field experience as part of the MPH Program, a new departmental program office was established to direct graduate student activities related to the practicum experience and the required MPH independent project. During their 108-hour practicum experience, students have the opportunity to apply knowledge and skills learned in the classroom within various *real world* settings at public health agencies and other health-related organizations offering practical experiences as a planned, supervised, and evaluated educational activity. **Tomoko (Tonie) I. Hooper, MD,**

MPH, Assistant Professor, USU SOM Department of PMB, is the Director of Graduate Research and Practicum Programs; and, she also serves as the Deputy Director for the Department of PMB's Graduate Education Programs.

The USU SOM Department of PMB submitted an application for accreditation from the ***Accreditation Board for Engineering and Technology (ABET)***, a graduate engineering accrediting board, in support of PMB's Environmental and Occupational Health Division Industrial Hygiene and Health Physics Specialty Tracks, in October of 2003; ***the review process was completed in July of 2004 and the program received national accreditation/certification for five years.***

Outstanding Responsiveness to the Continuing Medical Education Requirements of the TriServices.

The Occupational Ergonomics Program. Recognizing the importance of occupational musculoskeletal injuries among military personnel and in response to the Army's request for specialty training in occupational ergonomics within the MPH Program, an area of concentration was established, the Occupational Ergonomics Concentration in the Department of Preventive Medicine and Biometrics Master of Public Health Program, with faculty involvement from the Department of Medical and Clinical Psychology and the United States Army Center for Health Promotion and Preventive Medicine. The program offers courses in ergonomics, injury control, and health and safety. A number of students have completed their MPH research in this area. Recently, this program conducted a major study with significant health care implications for the military. The research, which focused on how the military manages low back pain, a major public health challenge, indicated that improved integration of ergonomic and psychosocial factors into direct health care actually improves health outcomes while cutting health care costs. ***The Occupational Ergonomics Program is the only established graduate-level injury prevention program in the Department of Defense***;

The International Health Specialist Program. The International Health Specialist (IHS) Program was initiated in 1999, under the guidance of **Lieutenant General Paul K. Carlton, Jr., Surgeon General of the United States Air Force**. Numerous After Action Reports (AARs) indicated that Humanitarian Assistance (HA) and Disaster Response (DR) missions would have gone more smoothly if members of the Air Force Medical System (AFMS) had language proficiency and more knowledge of the local culture during deployment. The purpose of the IHS Program is to prepare regionally-focused military medical experts who can help to prepare uniformed forces for operational contingencies and the response to medical crises around the world, in wartime and peacetime. The AFMS members may be selected for full time IHS assignments in support of Combatant Commander's Theater Engagement Plans. Individuals selected for the positions are prepared with short courses and rotations, as well as degree programs (i.e., the Master of Public Health (MPH) with a regional, humanitarian assistance, disaster response, or international health focus). A memorandum of understanding was signed between the Office of the Air Force Surgeon General and USU during October/November of 2001, to design, test, and implement an educational and academic curriculum for the IHS Program. ***Four students graduated from the IHS Program, during both 2004 and 2005, for a total of eight graduates***. These students were enrolled in the USU/SOM MPH Program, which gave them a broad didactic experience in public health and preventive medicine. ***The MPH IHS graduates have been assigned as the Deputy Surgeon, United States Southern Command; Chief, Medical Plans and Exercises of Special Operations Command, Central Command; Chief, Horn of Africa Medical Programs, Headquarters, United States Central Command, Office of the Command Surgeon; Chief, Central and***

South Asia Programs, Headquarters, United States Central Command; and, other significant positions with the IHS teams in the European and Pacific Commands (*The PMB Center for International Health provides further information on the IHS Program)*;

The Ph.D. Program in Environmental Health Science was established in response to identified needs within the Uniformed Services. ***As of this time, two Ph.D. Degrees in Environmental Health Science have been awarded, with the first granted in 2003***. Two active duty Naval officers, are currently enrolled in the Ph.D. Program; two active duty officers (1 Navy, 1 Army) will begin this Ph.D. Program in August of 2005;

The Master of Science in Public Health (MSPH) Program has graduated eight degree candidates between 2000 and April of 2005. Thirteen Army, Navy, and Air Force officers are currently enrolled in the Environmental and Occupational Health and the Health Physics specialties in the MSPH Program; two of these students are expected to graduate in 2005. The students and program faculty work closely with the Services and other Federal and international organizations to identify and address current needs for operational forces and emergency responders**.** ***Past and current projects have included the development of chemical warfare detection methods and instrumentation***;

The Aviation Physiology Specialty Track in the Master in Public Health Program has been offered for the past five years. In addition to Aerospace Operational Physiology I and Aerospace Operational Physiology II, Human Factors in Aviation, and Introduction to Risk Communication, two electives are selected from among the following: Special Topics in Aerospace Medicine; Aerospace Medicine in the Modern Age; Aerospace Exercise Physiology; Aerospace Performance & Health; Joint Medical Operations and Humanitarian Assistance; and, Health Effects of Ionizing/Non-Ionizing Radiation. This course of study prepares students not only for successful negotiation of the Aerospace Physiology Society's Board Certification Process, but also for a career in the military as an Aerospace Physiologist. ***Since 1999, nine students have completed the program and three students have audited it***. With an additional physiologist expected from the Air Force in 2005, further expansion of offerings will continue;

The TriService Advanced Military Tropical Medicine Course has been offered at USU, beginning in 1996, through the Summer of 2004. During 2004, 82 military medical officer students were trained in operational military medicine, consisting of four weeks of lectures and laboratories in the advanced diagnosis and treatment of tropical diseases. Approximately 70 lecturers provided over 106.5 hours of didactic instruction. ***To date, over 505 students have completed the course***. One hundred and thirteen continuing medical education hours (CME) were awarded during the past year; and, the overseas field missions were attended by 50 medical officers (El Salvador - 10; Bolivia - 10; Peru - 11; Guyana - 11; Cairo - 6; and, Thailand - 2). ***A medical officer used the training received in this course to make the initial diagnosis of malaria during the outbreak of malaria in Joint Task Force Liberia personnel in 2003; an action that very likely prevented disability and saved lives***;

The Tropical Medicine and Travelers' Health Course is offered as a 12-week course during the Spring Quarter of the MPH Program. It includes lecture, seminar, laboratory and case-based curriculum approved by the American Society of Tropical Medicine and Hygiene and leads to eligibility for the

qualifying examination in Tropical Medicine and Travelers' Health. ***To date, 37 uniformed medical officers and 14 civilian physicians have completed the course***;

The Diagnostic Parasitology Course is offered as a series of lectures and hands-on laboratory sessions for individuals wishing to study parasitic infections in humans. Uniformed and civilian medical technologists and physicians from all parts of the world have completed this course. Participants for the course have included: United States Embassy personnel from Asian and African countries sent by the United States Department of State; members of the Peace Corps; a medical doctor from the Japan Ground Self Defense Force; and, civilians from various foreign and domestic health related organizations. ***Since 1988, over 300 individuals have taken the course, to include 9 individuals who took the course during 2004***; and,

Medical Executives Skills Program (MedExec) was designed in response to a Congressional mandate that current and prospective DoD health care leaders receive training in health care management and administration. Both face-to-face and distance learning are included in the Program. In 2004, three modules were added to the MedXellence Distance Learning Program: Patient Feedback; Executive Management of Clinical Investigation Programs; and, HIPAA. Modules in financial management and modeling, as well as family-centered care, were added to the MedXellence on-site classes. ***Integrating Clinical and Managerial Decisions to Improve Population Health***, a five-day in-class portion of the MedExec Program, is held five times each year throughout CONUS and Atlantic and Pacific TRICARE Regions. ***To date, 37 sessions have been held in the TRICARE Regions and over 1,000 senior officers have been trained for the MHS***.

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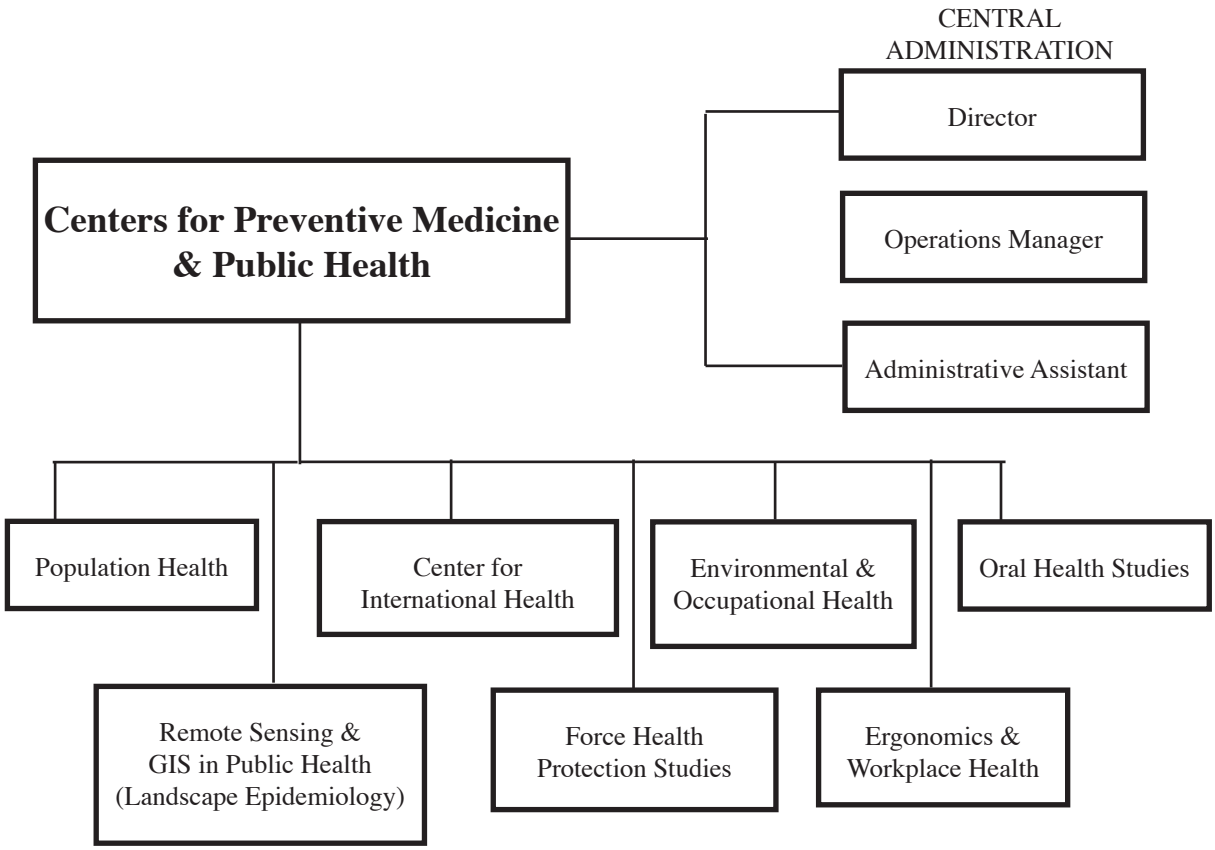
Centers for Preventive Medicine and Public Health.

The Centers for Preventive Medicine and Public Health (CPM/PH) are an entity within the USU SOM Department of Preventive Medicine and Biometrics. The seven Centers, under the direction of **Kenneth E. Kinnamon, D.V.M., Ph.D., Professor, USU SOM Department of Preventive Medicine and Biometrics,** operate under terms of a Memorandum of Understanding with the Henry M. Jackson Foundation for the Advancement of Military Medicine. The Centers combine broad expertise in research, consultation, education, training, and clinical preventive medicine and public health; this expertise is used to develop data bases and analytical methodologies, prepare innovative curricula, and evaluate processes and outcomes in clinical practices. The following seven Centers provided consultative, research, and educational services to the TriServices, during 2004:

1) The Center for Application of Remote Sensing and Geographic Information Systems (GIS) in Public Health (Landscape Epidemiology);
2) The Center for Environmental and Occupational Health;
3) The Center for Ergonomics and Workplace Health;
4) The Center for Force Health Protection Studies;
5) The Center for International Health;
6) The Center for Oral Health Studies; and,
7) The Center for Population Health.



The Center for Application of Remote Sensing and Geographic Information Systems in Public Health (Landscape Epidemiology).

Background. Remote sensing has an increasingly prominent role in the improvement of public health programs; as a result, a significant number of graduate students in public health are seeking formal training and experience in remote sensing technology. The Center's earlier National Aeronautics and Space Administration (NASA)-supported research and equipment, along with additional equipment provided by a special NASA grant for the purchase of hardware and software, have been used to establish a Center in which remote sensing technology is applied to emerging and re-emerging infectious diseases and environmental health.

Mission. The Center provides faculty expertise and the software and hardware necessary for students and faculty to engage in remote sensing (RS) and geographic information systems (GIS) research projects in public health. ***Donald R. Roberts, Ph.D., Professor, USU SOM Department of Preventive Medicine and Biometrics, served as the Director for the Center during 2004.*** Doctor Roberts is a member of: the American Society of Tropical Medicine and Hygiene; the Society of Vector Ecology; and, the American Mosquito Control Association. He is interested in developing new and innovative models for malaria control and in applied research for testing different approaches to controlling malaria. For many years, he has studied the behavioral responses of malaria vectors to insecticide residues and this research has culminated in a new conceptual model for actions of insecticides in malaria control programs; these efforts have resulted in numerous scientific publications and extensive press coverage. Doctor Roberts continues several lines of funded research, including a National Institutes of Health/National Science Foundation funded research program in Belize on assessing the impact of anthropogenic environmental change on malaria; and, malaria vector ecology. A NASA-funded research program to apply GIS and remote sensing technologies to the study of vector-borne diseases is ending, in 2005. A National Institutes of Health (NIH)-funded program to screen experimental chemicals for use in malaria control is now in its second of five years of funding.

Educational Activities. The Center offers two credit courses, ***Introduction to GIS in Public Health*** and ***Remote Sensing Methods in Public Health***, and non-credit training classes in remote sensing and GIS to students and faculty. Both credit and non-credit courses are taught by **Ms. Penny Masuoka**. Ms. Masuoka has many years of research and teaching experience and is an expert in geographical information systems and remote sensing technologies. The two credit courses taught by Ms. Masuoka cover the basic elements usually taught in remote sensing and geographic information systems (GIS) with emphasis on the areas most relevant to public health (such as classification, raster GIS modeling, and integrating field maps with remotely sensed images). The credit courses, evolved from a combined course, *Remote Sensing and GIS Methods in Public Health*, first presented during the Winter Quarter of 1998-1999, was offered in the Fall Quarters of 1999 through 2003. For the 2004-2005 Academic Year, the course was split into two courses to allow for more development of the individual themes of GIS and remote sensing. The courses cover GIS, spatial analysis methods, remote sensing, and image processing as applied to the field of public health. The goal is to provide students with a combination of theoretical background, example applications in the published literature, and hands-on experience in using hardware and software to enable the students to use the techniques discussed in class in a knowledgeable way in their research and future work in public health. The lectures cover the overview and history of GIS, GIS data structures, entering data into a GIS, geographic analysis, cartographic presentation, applications of GIS to public health, types of remote sensing imagery, image processing, photointerpretation of various imagery types, and application of remote sensing

to public health. The laboratory provides students with hands-on experience in the public health uses of image processing and GIS software. The students and faculty have been enthusiastic about the courses. The GIS course is being offered in the Fall Quarter of 2005 and will be taught by Doctor Nicole Achee. Pending funding, the remote sensing course will be offered in the Winter Quarter of 2005-2006.

Computer and Equipment Support for Research Activities. Recently funded research proposals use the Center computers to perform research. A proposal funded by the National Institutes of Health studies the effect of human-induced change on mosquito habitats in Belize; this project uses Center computers in support of research activities. The Center's printers are being used to assist in the publication of research results from the Center. As the training and course work continue, the Center staff anticipates that students and faculty will be adding new projects to the Center in both infectious disease and environmental health studies.

> **Personnel from an American military medicine university held a workshop this week on malaria vectors, namely mosquitoes, for the Ministry of Health. The sessions covered a range of topics including collection methods for larvae and adults, materials needed to identify malaria carriers, their resistance to insecticides, data management, and display techniques. Eighteen members of the ministry's Vector Control Programme attended the workshop facilitated by the Uniformed Services University of the Health Sciences' Dr. Nicole Achee and John Grieco. Countrywide spraying to control mosquitoes began again last week after a noticeable absence over the past few months.**
>
> - **WWW.Channel5Belize.COM,** *U.S. Team Holds Malaria Vector Training*, June 3, 2005.

Malaria Research in Belize. The Center has continued studies in Belize to apply remote sensing and geographic information systems to the National Malaria Control Program. The Center has been working on malaria in Belize since 1995, with funding from NASA. The Center has received a five-year grant from the National Institutes of Health (NIH) along with the University of California, Davis, to continue its work in Belize. Research under the NIH grant is focused on studying human-induced change, such as deforestation along streams and changes in marsh vegetation due to agricultural runoff, and the effect these changing environments have on the distribution of malaria in Belize. One DrPH student used the historical malaria data collected during the earlier Belize research in her dissertation. Another Ph.D student in Medical Zoology mapped deforestation along rivers under the Belize grant and used this study as part of her dissertation.

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The Center for Environmental and Occupational Health.

Mission. The Center for Environmental and Occupational Health promotes excellence in programs focusing on environmental and occupational health by providing research, consultation, education, and training support to government entities and educational institutions. Areas of interest pertaining to environmental and occupational health include: policy; education and training; health risk and hazard assessment standards setting; resource management; regulatory compliance; pollution prevention; and, environmental restoration.

Colonel Thomas A. Neal, M.D., USAF, MC, CFS, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics, served as the Director of this PMB Center during 2004. Colonel Neal is a member of both the American College of Occupational and Environmental Medicine and the American Society for Laser Medicine and Surgery. Doctor Neal instructs in four courses in Graduate Education Programs. He is: the Course Director for both ***Essentials of Toxicology*** and ***Human Physiology***; a lecturer in both ***Safety Engineering*** and ***Environmental Health***; and, an MPH/MSPH Student Advisor for ***Directed Studies & Research***. Within the SOM curriculum, Doctor Neal serves as a lecturer for the second year *Preventive Medicine Occupational Medicine Module*. He is the Principal Investigator on the grant, *Enhancement Through Operational Research of the U.S. Army's Global Preventive Medicine Program*; this is a five-year follow-on research project, from April of 2001 through March of 2006, for the United States Army Center for Health Promotion and Preventive Medicine (CHPPM). During 2004, three articles were published by the Center in peer-reviewed journals and eight presentations were provided by the Center staff at DoD and other Federal organizations.

Research Activities.

Indian Health Service Education and Training Support Program. The principal output of this program is the administration of a one-year Environmental Health Post-Graduate Fellowship on behalf of the Indian Health Service of the United States Public Health Service. **The principal investigator is Major Scott A. Nemmers, USAF, BSC, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics**.

Enhancement Through Operational Research of the United States Army's Global Preventive Medicine Program. This project is a follow-on to an original grant initiated in July of 1995, that terminated on March 31, 2001. The original grant consisted of nine separate research initiatives: health risk assessment; health promotion; health hazard assessment; occupational and environmental medicine; environmental compliance and pollution prevention; medical entomology; radiation protection; preventive medicine readiness planning; and, preventive medicine planning and integration. Five research tasks were to be accomplished: conduct a program assessment; develop alternative program change methodologies; develop measures of merit to evaluate alternative methodologies; implement and evaluate the selected methodology; and, publish results. The total funding level was set at $21.362 million. A total of 52 Henry M. Jackson Foundation (HJF) employees were working on the project located at the United States Army Center for Health Promotion and Preventive Medicine (CHPPM), until the project terminated at the end of March 2001. During the five and one-half years of the original project, over 500 publications

were produced, including technical reports and assessments, peer-reviewed and other publications, training session materials, studies, and professional meeting presentations.

Because of the success of the original grant project, CHPPM reinitiated a follow-on project with USU and the HJF that began on April 1, 2001, as a contract effort. Funding, in the amount of $4.2 million for the first year (April 2001 through March 2002) of the follow-on project was received. The follow-on project entitled, *Enhancement Through Operational Research of the United States Army's Global Preventive Medicine Program*, is divided into ten study areas: 1) Health Risk Assessment; 2) Health Promotion; 3) Health Hazard Assessment; 4) Epidemiology and Medical Surveillance; 5) Environmental Health and Compliance; 6) Medical Entomology; 7) Radiation Protection; 8) Ergonomics; 9) Clinical Preventive Medicine; and, 10) Informatics. A total of 58 personnel were employed through the HJF for this project (most had worked on the earlier project). At the completion of the first year as a follow-on project, the project was re-established as a new one-year contract effort on April 1, 2002, with four follow-on option years built in. Funding in the amount of $3.2 million was received for the first year of the new contract (April of 2002 through March of 2003); $2.8 million was funded for the second year (April of 2003 through March of 2004). As of September 30, 2003, 31 personnel were employed through the HJF to work on the project, down from the 47 personnel employed on September 30, 2002. The reduction in personnel has primarily occurred through the conversion of HJF employees to temporary CHPPM employees with Civil Service status. **The principal investigators are Robert J. Fitz, Jr., MSPH, MPH, Assistant Professor, USU SOM Department of Preventive Medicine, and Biometrics,** and **Colonel Thomas Neal, M.D., USAF, MC, CFS, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics**.

Development of Environmental Organic Contaminant Sampling and Analysis Methods. This research is funded by the United States Marine Corps Systems Command; the EOH research group studying field-detection methods for military relevant chemicals has been focusing on three areas: field detection methods for military relevant compounds; instrument development; and, training for field chemical detection. **The principal investigators are Commander Gary L. Hook, MSC, USN, Ph.D., Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics, and Lieutenant Colonel Peter R. LaPuma, USAF, BSC, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics**.

Field Detection Methods for Military Relevant Compounds. Research conducted by **Lieutenant Doug Parrish, USN, a Doctoral student,** has focused on the use of a new solid phase microextraction (SPME) method called solid phase dynamic extraction (SPDE) coupled to gas chromatography-mass spectrometry (GC-MS) and a prototype photoionization, quad rupole ion trap, time-of-flight MS as a field expedient method for the detection of unknown chemicals.

Lieutenant Commander David Koch, USN, an MSPH student, in conjunction with the Federal Bureau of Investigation (FBI) Forensic Research Laboratory and DDRC-Suffield, has initiated research utilizing a commercially available low thermal mass, resistively heated column for the rapid separation of complex organic mixtures and chemical warfare agents in the field. ***This work has demonstrated the ability to separate and identify a complex mixture of five airborne chemical warfare agents in under three minutes***; this work is continuing to look at forensics aspects of rapid field detection of airborne narcotics. **Captain Nack, USA, an MSPH student,** funded by the United States Army Center for Environmental Health Research, completed research on the use of SPME/GC-MS for the detection of pesticides in water.

Instrument Development. Research is currently underway that will enhance field analytical capabilities through the enhancement of existing equipment and the development of a new, rapid GC-MS. **Lieutenant Commander Rick Erickson, USN, a Ph.D. student,** is leading research focused on the development of smaller and more portable field GC-MS systems for the rapid detection of unknown chemicals in the environment. He is currently performing field evaluations of two prototype instruments for potential use by the United States Marine Corps Chemical Biological Incident Response Force. **Lieutenant Commander Greg Cook, USN, a Ph.D. student,** has recently begun collaborative research with the FBI Forensics Research Laboratory in Quantico, Virginia. ***The focus of this research is to improve the performance of the ion mobility spectrometer (IMS) currently in use at airports across the Nation for the detection of explosives.*** This effort will focus on the improvement of the GC portion of the instrument in order to enhance the chemical separation capability of the instrument and improve the sensitivity to reduce the false positive identifications by the instrument. **Captain Kan, USN, an MSPH student,** is collaborating with Inficon, the manufacturer of the Hapsite portable GC-MS. This effort focuses on the development of an SPME injection port for the Hapsite; this instrument is currently limited to the analysis of samples already in the gas phase. This research will enhance the capabilities of the instrument by enabling it to analyze non-gas phase samples (i.e., aqueous samples). It will also provide the flexibility to gather SPME samples in multiple locations for later analysis while the Hapsite is in use at one location. **Captain Skinner, USAF, an MSPH student,** is working with Air Force and Navy elements in testing the repeatability of the Inficon Hapsite used throughout the DoD as a portable GC-MS. To date, only four instruments have been tested for repeatability performance. Over 70 units will be tested in this study, with 34 chemicals at various concentrations. ***This will allow users to understand the precision and accuracy of a system used to detect chemical warfare agents as well as toxic industrial chemicals***.

Training for Field Chemical Detection. The EOH research group continues to provide focused GC-MS training for military field GC-MS operators. The formal, 12-week GC-MS Course, developed and taught two years ago, is being conducted again for the USMC Chemical Biological Incident Response Force (CBIRF). ***Weekly training evolutions have continued with the CBIRF throughout 2004, as well as faculty and student involvement in CBIRF's live-agent training at DRDC-Suffield***.

Bioavailability of Chromate Containing Primer Paints. *Hexavalent chromium* is the active ingredient used in primer paints to protect metal from corrosion; primer paints are used on nearly all DoD aircraft and ships. Hexavalent chromium is a human carcinogen; and, OSHA proposes to significantly lower the exposure standard prohibiting the use of hexavalent chromium containing paints. However, lung cancer from hexavalent chromium exposure is elevated in most industries except for the painting industry. One reason may be that the paint matrix hinders the release of the ingredient from paint particles. An important parameter in understanding the health effects of a chemical is to determine the amount of chemical released from the inhaled particles. In this research, the fraction of hexavalent chromium released from paint particles into simulated lung fluid will be measured. The simulated lung fluid will be tested for the mass of this active ingredient that dissociated from the particles. The fraction of hexavalent chromium released will be correlated with the particle size to determine if the particle size influences the fraction of hexavalent chromium released.

Triage and Treatment of Laser Eye Injury on the Modern Battlefield. This research will study five task areas:

Task 1. The personnel involved with this task will make major equipment purchases, which will include high energy laser sources operating in the 1.3 to 2.0 um spectral region and supporting equipment (i.e., optics, detectors, and analysis equipment). Funding was accomplished in March of 2003; a full-time post-doctoral Fellow and laboratory technicians will dedicate 100 percent of their time to the successful accomplishment of this task (months 1-4).

Task 2. This task will determine *in vitro* and *in vivo* thresholds for injury at 1.3, 1.5, and 2.0 um wavelengths. This information will be used to determine: correlations between the gross appearance of lesions following *in vivo* and *in vitro* exposures (months 4-18); correlations of biomarker expression between *in vivo* and *in vitro* exposures (months 6-20); and, theoretical and predictive models of the biophysical damage mechanisms to tissue from these wavelengths (months 6-24).

Task 3. This task will utilize histomorphometric and biomarker data and other information from Task 2 to develop battlefield treatment techniques for thermal injuries (linear phenomena) at, or near, the threshold for injury. ***Battlefield treatments will focus on using supplies/pharmaceuticals already carried by a field medic***. Special emphasis will be made on contraindicated battlefield treatments (months 12-24).

Task 4. This task will determine thresholds for non-linear phenomena in the cornea. These non-linear effects are expected to be mechanically more disruptive to tissue, causing damage that is consistent with tearing and ripping of tissue rather than the thermal damage expected in Task 2. This information will be used to determine: extent and permanency of tissue damage through *in vivo* and *in vitro* exposures (months 24-36); biomarker correlation between *in vivo* and *in vitro* exposures from the more severe, non-linear effects induced injuries (months 26-40); and, theoretical and predictive models of the biophysical damage mechanisms to tissue from non-linear effects (months 24-40).

Task 5. This task will utilize histomorphometric and biomarker data and other information from Task 4 to ***develop battlefield treatment techniques for non-linear injuries significantly above the ED threshold for injury***. Battlefield treatments will focus on using supplies/pharmaceuticals already carried by a field medic. Special emphasis will be made on contraindicated battlefield treatments, with a goal to return the service member to active duty (months 36-48).

As of this report, personnel have been hired and lasers have been purchased to begin testing.

Health Effects of the 3800 nm Laser. This project has yielded a multitude of information in three main areas: artificial skin, pig skin, and human skin reactions:

Artificial Skin. Studies performed with artificial skin were performed in conjunction with the University of Illinois. Histology and gross effects were used to predict the effects of the laser on pig skin. This information provided a starting point for the animal models; the initial ED was ascertained based on this model. Exposures are complete and a manuscript is in preparation.

Pig Skin. A total of ten pigs have been exposed and currently three manuscripts are in preparation regarding the data collected on skin injury thresholds and thoracic injury. This information, in conjunction with the artificial skin findings, will be utilized to help set new standards for skin exposure in the ANSI Z136.1 *Safe Use of Lasers* standard.

Human Skin. The thresholds for human skin sensation of this laser, in order to determine if aversion response is possible, has been partly completed and is being prepared for submission as a manuscript.

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The Center for Ergonomics and Workplace Health.

Mission. The Center for Ergonomics and Workplace Health focuses on an integrated approach to ergonomics and occupational health, targeting both the civilian and military workplace. Research in the Center is directed at understanding the interactive roles of medical, biomechanical, organizational, workplace and individual psychosocial factors in the etiology, prevention, and management of prevalent occupational health problems. Currently, the Center conducts research on the mechanisms and management of workplace musculoskeletal disorders and is also involved in education, public policy, and consultation. The Center is a joint effort between the USU SOM Departments of Preventive Medicine and Biometrics *and* Medical and Clinical Psychology. **Michael Feuerstein, Ph.D., MPH, Professor, USU SOM Department of Medical and Clinical Psychology, served as the Director of the Center during 2004.** Doctor Feuerstein is a *Member* of: the National Academy of Sciences and the Institute of Medicine, Panel on Musculoskeletal Disorders and the Workplace; Advisor for the Committee on the Consequences of Uninsurance; the Human Factors and Ergonomics Society; the Association for Advancement of Behavior Therapy; and, the International Association for the Study of Pain. In addition, he has been designated as a *Fellow* by: the Academy of Behavioral Medicine Research; the American Psychological Association; and, the Society of Behavioral Medicine. During 2004, eight articles were published in peer-reviewed journals and seven presentations were provided by the Center staff at national and international organizations.

Research Activities.

Patient Satisfaction, Cost and Treatment Guidelines: Musculoskeletal Disorders. The premise for developing treatment guidelines is to improve health care outcomes and costs for the disease, injury, or disorder that is addressed, using existing standards of care. The DoD and the Department of Veterans Affairs (VA) have developed treatment guidelines for a number of health problems. Among the existing treatment guidelines are standards for treating low back pain; however, no DoD/VA guideline exists for the treatment of upper extremity pain. It is currently unclear what effect the existence and implementation of these guidelines, as well as compliance with these guidelines, would have on patient satisfaction, functional outcomes, or perceived health and health care costs. This study has two aims: 1) to determine trends in provider compliance with these guidelines both across years and within an episode of care; and, 2) to compare the patient satisfaction and perceived health outcomes from the Health Care Survey of DoD beneficiaries and the administrative data on functional outcome and health care costs for active duty personnel, retirees, and dependents with low back pain diagnoses (disorders for which there is an existing treatment guideline) in contrast to those with upper extremity diagnoses (not addressed with a treatment guideline at this time). These comparisons will examine the role of guideline compliance and highlight any benefits gained from the existence and implementation of treatment standards. This study is funded by the Epidemiology Health Program Analysis and Evaluation Branch of the TRICARE Management Activity (Department of Defense) and Veterans Affairs. **The principal investigator is Michael Feuerstein, Ph.D., MPH, Professor, USU SOM Department of Medical and Clinical Psychology.**

Prospectively Identifying Patterns of Ergonomic and Work Organization Risk Factors for Musculoskeletal Disorders. **Grant D. Huang, Ph.D., MPH, Assistant Professor, USU SOM Department of Medical and Clinical Psychology,** and his colleagues have identified back and upper extremity disorders to be the major sources of lost time and clinic visits in the United States Marine Corps. While there has been an increasing number of studies that have identified risk factors for work-related musculoskeletal

disorders, no prospective studies have examined combinations of ergonomic and specific work organization factors related to time pressure, cognitive demands, interpersonal demands, and participatory management. The aims of the present study are to: 1) determine the incidence of diagnosed low back and upper extremity disorders among enlisted Marines; and, 2) delineate ergonomics and specific work organization risk factors for such musculoskeletal outcomes at six and twelve months through a post- baseline questionnaire. Follow-up data on ICD-9 musculoskeletal-related diagnoses recorded at clinic visits will be obtained from a medical administrative database. This investigation represents a key next step in a series of studies designed to develop an innovative secondary prevention program for work-related low back and upper extremity-related disorders. ***In particular, findings may shed light on those ergonomic factors and specific dimensions of work organization to be targeted in prevention efforts***. Furthermore, the prospective nature of this research can potentially provide insights into mechanisms for musculoskeletal outcomes and assist in reducing burdens associated with health care utilization, financial costs, and lost productivity. This study is funded by the Johns Hopkins NIOSH Education Research Center. The principal investigators on this study are **Michael Feuerstein, Ph.D., MPH, Professor, USU SOM Department of Medical and Clinical Psychology,** and **Grant Huang, Ph.D., formally at the USU SOM, currently at the Veterans' Affairs (VA) Headquarters, in Washington, D.C.**

***Workstyle Intervention for the Prevention of Work-Related Upper Extremity Problems*.** Work-related upper extremity disorders (WRUEDs) are a considerable source of distress and disability in the modern workforce. Research has identified that physical risk factors (i.e., workplace ergonomic design and biomechanical motions required by the task, etc.), psychosocial risk factors (i.e., workplace stress, workload, etc.), and personal risk factors (i.e., individual coping style, appraisal style, medical history/ status, etc.) all play a role in the development, exacerbation, and maintenance of WRUEDs. However, prevention methods often focus on the modification of only one of these risk factors (i.e., ergonomic redesign only or on individual stress management only). ***Recent investigations using combined approaches (i.e., ergonomic redesign and individual stress management) show promise for increasing the effectiveness and durability of intervention benefits*.** Work style is a description of how people perform their work and is proposed as a mechanism by which ergonomic and psychosocial stressors in the workplace interact with the individual's response style to place a worker at risk for the development and/or exacerbation of WRUEDs. Inclusion of work style related interventions into workplace WRUED prevention (primary and secondary) programs may result in better overall treatment gains. This study is a randomized controlled trial of workplace intervention for the secondary prevention of work-related upper extremity symptoms and functional limitations. Symptomatic workers will be assigned to one of four treatment conditions: ergonomics-only (current standard practice); work style only (investigation of cognitive-behavioral modification of how individuals perform work); work style and ergonomics combined condition; and, wait-list control. Measures of ergonomic risk, psychosocial stress, work style response, and symptom status were collected at baseline, post-treatment, and at a three-month follow-up; they will also be collected at the 12-month period. The aim of this study is to determine if the addition of work style related interventions result in positive outcomes. The findings may enhance the development of effective workplace programs to prevent WRUEDs. Findings at three months indicate non-specific effects have led to improvements over time for all groups with no significant differences across treatment modalities. Findings at 12 months will be reported later this year. This project is funded by the Office Ergonomics Research Committee and will be conducted in collaboration with the CNA Insurance Company in Chicago, Illinois. **The principal investigators are Captain Rena Nicholas, M.S., Graduate Student Associate, USU SOM Department of Medical and Clinical Psychology,** and **Michael Feuerstein, Ph.D., MPH, Professor, USU SOM Department of Medical and Clinical Psychology**.

Work Productivity in Cancer Survivors: Brain and Breast Cancer. Consistent with the mission of the Center, the researchers are examining cancer survivorship and work. The survival rates of many types of cancer are increasing and there is now a greater focus on optimizing long-term function. While the management of cancer is primarily directed at lowering patient mortality, problems often remain as a result of the long-term neurotoxic consequences of some of the cancer treatments, especially in those living longer. Return to work and productivity measures while at work could, in part, be affected by these neurotoxic effects. There is a need for studies that investigate the multiple factors that may be associated with return to work and work productivity in cancer survivors. This type of investigation can not only lead to a better understanding of the role of such factors as neuro-cognitive limitations, fatigue, and mood, but can also help to implement effective accommodations that can more precisely assist cancer survivors. The present study is an investigation of cancer survivors' return to work, lost work time, and work productivity. More specifically, it is designed to delineate the impact of cognitive limitations on work outcomes while controlling for disease, treatment type, health behaviors, fatigue, quality of life, mood, cognitive limitations and problem solving. This research will help guide future interventions efforts to improve work reintegration in cancer survivors. **The principal investigator is Michael Feuerstein, Ph.D., MPH, Professor, USU SOM Department of Medical and Clinical Psychology**.

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The Center for Force Health Protection Studies.

Mission. The Center for Force Health Protection Studies conducts a comprehensive research program on the short- and long-term health outcomes associated with military operational environments, in particular, the conditions and experiences associated with training, deployment, combat, and humanitarian and disaster relief operations. The Center promotes the use of a systematic process to evaluate disease and non-battle injuries in military and veteran populations for guiding health policy development. ***The Center's goal is to enhance the scientific knowledge base for military deployment health and to develop recommendations for preventive health interventions***. The research focus is on studies that collect, manage, and integrate health-related data for purposes of risk assessment and risk communication to protect individuals who serve the Nation during peacetime and during war. The Center develops databases, analytic methodologies, and models for predicting health outcomes, as well as for identifying, evaluating or designing specific interventions for preventing injury and illness. The Center also participates in interagency collaborative research programs. Finally, it provides consultative services to program managers and executives in the health-related components of the DoD, the Department of Veterans' Affairs, other Federal agencies, local governments, and private organizations. **Tomoko I. Hooper, M.D., MPH, FACPM, Assistant Professor and Director, Graduate Research and Practicum Programs, USU SOM Department of Preventive Medicine and Biometrics, is the current Center Director.** Doctor Hooper is board-certified in General Preventive Medicine/Public Health and is a Fellow of the American College of Preventive Medicine. She also maintains *Diplomate* status with the American Board of Preventive Medicine, General Preventive Medicine/Public Health. Doctor Hooper is a Co-Course Director in three PMB Graduate Education Courses (***Introduction to the MPH Project and Practicum***, ***MPH Project/Practicum Design and Development***, and the ***MPH Project/Practicum Implementation and Evaluation***; in addition, she serves as the Course Director for ***Public Health Practicum*** and the ***MPH Independent Project***. During 2004, fourteen articles were published in peer-reviewed journals by the Center staff.

Research Activities During 2004.

The focus of this Center on studies related to force health protection continues to be reflected in the various on-going and planned collaborative research activities within the Center. Although the research collaboration under a Cooperative Agreement with the DoD Center for Deployment Health Research at the Naval Research Center (NHRC) has ended, the Center will continue its collaboration with NHRC researchers on the Millennium Cohort Study, as well as other projects of importance to force health protection. These studies and others continue to add to the scientific knowledge base on a wide range of military and public health related topics, including epidemiologic methodology for population-based studies, injury outcomes and prevention, as well as the health effects of exposures and experiences associated with military service, particularly deployment.

The Millennium Cohort Study. **Colonel Gary D. Gackstetter, DVM, Ph.D., USAF, BSC, Associate Professor, USU SOM Department of Preventive Medicine and Biometrics,** and **Tomoko I. Hooper, M.D., MPH, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics,** are among the seven co-investigators on this landmark study. The Millennium Cohort Study is the largest prospective study in military history and one of the largest cohort studies ever undertaken in the United States. Initial data collection for the baseline cohort began in July of 2001. The probability-based sample of invited participants was established from service rosters as of October 1, 2000, and included all

United States military personnel serving in the Army, Navy, Coast Guard, Air Force, and Marine Corps. Enrollment was nearly 80,000 at the close of the initial enrollment phase. Additional accession cohorts, of approximately 40,000 in 2004 and 20,000 in 2007, will be added for a total of 140,000 individuals to be followed through 2022.

A Nested Case-Control Study of Fatal Motor Vehicle Crashes Among Gulf War Era Veterans. This collaborative project involving researchers from the VA and DoD (USU and NHRC) is in the final stages of analyses related to the recommendations made at the time of the annual American Institute of Biological Sciences (AIBS) Scientific Peer-Review of Federally Funded Health Protection Studies in February of 2003. The expanded analytic data set includes data on pre-deployment hospitalization, potential exposure to the demolition plume at Kamisiyah, and separation from military service (including the reason(s) for separation). Possible interactions between military unique variables and other risk factors for motor vehicle crashes are specifically being examined. A manuscript entitled, *Leveraging Existing Databases to Study Vehicle Crashes in a Combat Occupational Cohort: Epidemiologic Methods*, was recently published in the American Journal of Industrial Medicine; two other manuscripts have been submitted to peer-reviewed journals. ***Morbidity and mortality related to motor vehicle crashes is of major concern to the military, particularly as the risk of fatal motor vehicle crashes is increased among service members returning from deployment.***

Assessing the Potential Health Impact of the Gulf War on Saudi Arabian National Guard (SANG) Members and their Dependents. This multi-agency international collaboration involving investigators from the Centers for Disease Control and Prevention; the King Abdul Aziz Medical City (formerly King Fahad National Guard Hospital) in Riyadh, Saudi Arabia; the Naval Health Research Center; and USU will come to a close at the end of Fiscal Year 2005. Two manuscripts have been published: *Assessing the Potential Health Impact of the 1991 Gulf War on Saudi Arabian National Guard Soldiers* (International Journal of Epidemiology) and *Saudi Arabia - United States Collaboration in Health Research: A Formula for Success* (American Journal of Infection Control). Under the direction of the Deployment Health Support Directorate, Office of the Assistant Secretary of Defense for Health Affairs, the Center is also conducting a study of health outcomes among United States service members who were deployed to the 1991 Gulf War and were still on active duty as of September 1994. This study is being done in collaboration with NHRC.

Descriptive Analysis of Injuries and Illnesses in United States Military Members During Operation Iraqi Freedom. This Health Affairs-directed study of in-theater medical events is well underway with respect to data acquisition and preliminary analyses. A graduate student and Navy Occupational and Environmental Medicine Resident worked with Center personnel to analyze data on aeromedical evacuations from the Operation Iraqi Freedom Theater of Operations. A manuscript entitled, *Aeromedical Evacuations from Operation Iraqi Freedom: A Descriptive Study*, was published in Military Medicine.

Analyses of Non-Fatal Motor Vehicle Crashes in the Military Population. Two interagency agreements were recently established, one with the National Highway Traffic Administration and the other with the National Institute for Occupational Safety and Health, to continue studies of motor vehicle crashes. These studies will involve analyses of non-fatal motor vehicle crashes in military populations.

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Center for International Health.

Mission. The purpose of the International Health Specialist (IHS) Program is to prepare regionally-focused military medical experts who can help to prepare uniformed forces for operational contingencies and the response to medical crises around the world, in wartime and peacetime. The AFMS members may be selected for full time IHS assignments in support of Combatant Commander's Theater Engagement Plans. Individuals selected for the positions will be prepared with short courses and rotations, as well as degree programs (i.e., the Master of Public Health (MPH) with a regional, humanitarian assistance, disaster response, or international health focus).

A memorandum of understanding was signed between the Office of the Air Force Surgeon General and USU during October/November of 2001, to design, test, and implement an educational and academic curriculum for the IHS Program. **Colonel Martha Turner has been the Program Director of the IHS Program at USU**, since February of 2003; and, **Lieutenant Colonel Rebecca Schlick, has been the Deputy Program Director**, since September of 2003. They are billeted at the 311th Human Systems Wing, Brooks City Base, and assigned at USU.

The International Health Specialist Program. The International Health Specialist (IHS) Program was initiated in 1999, under the guidance of **Lieutenant General Paul K. Carlton, Jr., Surgeon General of the United States Air Force**. Numerous After Action Reports (AARs) indicated that Humanitarian Assistance (HA) and Disaster Response (DR) missions would have gone more smoothly if members of the Air Force Medical System (AFMS) had language proficiency and more knowledge of the local culture during deployment. It was believed that because medics serve as instruments of international policy, they should be provided the opportunity to become more culturally aware and language proficient.

Four students graduated from the IHS Program, during both 2004 and 2005, for a total of eight graduates. These students were enrolled in the USU/SOM MPH Program, which gave them a broad didactic experience in public health and preventive medicine. In addition to the MPH requirements, the IHS students completed additional international health courses and an additional Air Force International Training (AFIT)-sponsored second year for structured experiences and projects with various organizations involved in international health. They received quality-assured knowledge from an impressive array of courses such as Epidemiology, Biostatistics, Environmental Health, Health Services Administration, Social and Behavioral Sciences, International Health, Medical Anthropology, Joint Medical Operations and Humanitarian Assistance, Public Health Issues in Disasters, Historical Perspectives of International Health, Program Planning & Development, Principles of Healthcare Management, Decision Making in Health Services, Principles and Practice of Tropical Medicine, Malaria Epidemiology and Control, Travel Medicine Practicum, and Deployment Environmental Exposures. ***The MPH IHS graduates have been assigned as the Deputy Surgeon, United States Southern Command; Chief, Medical Plans and Exercises of Special Operations Command, Central Command; Chief, Horn of Africa Medical Programs, Headquarters, United States Central Command, Office of the Command Surgeon; Chief, Central and South Asia Programs, Headquarters, United States Central Command; and, other significant positions with the IHS teams in the European and Pacific Commands***. In their positions, these graduates frequently interface with local and international health authorities in efforts to establish working relationships, advance interoperability, and prepare medical missions in support of their commands' Theater Security Cooperation Plan.

Student Activities During 2004/2005. *In 2004/2005, IHS students participated in humanitarian assistance missions in Thailand, Kenya, and Ethiopia*; and, they did practicum work at various governmental and non-governmental organizations. For example, ***Captain Cogswell, an IHS student,*** *had a two-month internship at the Asian Disaster Preparedness Center, in Bangkok, Thailand*; he also participated in a humanitarian mission in Korat, Thailand, and attended the International HIV Conference, in Bangkok, Thailand. Captain Cogswell successfully completed both a Thai Enhancement Course at the Diplomatic Language Services and the Defense Language Proficiency Test, in the Thai language. ***Major Selent, another IHS student,*** *worked at the Pentagon in the Special Operations Low Intensity Conflict (SOLIC) Office* under the mentorship of CAPT Ken Schor; and, she also assisted the Response Medical Team (RMT) at the Office of Foreign Disaster Assistance (OFDA) following the Tsunami Disaster, under the mentorship of CAPT Ken Schor and Mr. Steve Caitlin. She completed her internship at OFDA, in March of 2005. Additionally, Major Selent participated in French Courses at the National Institutes of Health, USDA, and at the Diplomatic Language Services in Washington, D.C., and LaRochelle, France; she successfully passed the Defense Language Proficiency Test. ***Major Brian Moore, IHS student,*** *participated in several military missions in Nepal, Ethiopia, Kenya, and Florida; he also attended a Course in the Law of Armed Conflict, in Spiez, Switzerland*. In addition, IHS students have attended several courses at the National Foreign Affairs Training Center, the Joint Special Operations University at Hurlburt Air Force Base, Florida, and at the Brooks City-Base and Sheppard Air Force Base training sites.

Staff Activities During 2004/2005. Colonel Turner and Lieutenant Colonel Schlick participated in several activities supporting global health educational initiatives. Among them, participation in the Law of Armed Conflict Course, in Spiez, Switzerland; presentation of posters and papers at the 35th International Congress of Military Medicine (ICMM), held in Washington, D.C.; consultation on MPH education programs in India; the ICMM Scientific Review Panel; the USU Faculty Development/Education Series; the Centers for Preventive Medicine and Public Health; Coordination of International Health I & II, Medical Anthropology, the Seminar on Historical Perspectives in International Health, and Ethics in Public Health; and, hosting of military and civilian educators from American, European, and Central Asian States. Colonel Turner's research on *Aeromedical Evacuation of Combat Casualties Post 9/11* was completed in September of 2005; the analysis of the data from the deployment experience in Iraq is on-going.

Colonel Turner continues her consultation work in India, in support of the initiative to develop MPH programs in several academic settings. The military and military/civilian meetings provided opportunities for the exchange of information and laid a foundation for further collaboration. One of the highlights of her trip to India was the signing of a memorandum of understanding between the Indian Army and USU at a formal ceremony attended by United States Embassy officials and the senior leadership of the Indian Ministry of Defense. She also visited Viet Nam and attended The Asia Pacific Military Medical Conference in Hanoi, Viet Nam. *Colonel Turner presented two posters; one on the Distance Learning Course Initiative,* ***Public Health Issues in the International Environment****, developed by the International Health Program*. The second poster described the findings from a TriService Nursing Research Study on Aeromedical Evacuation since 9/11. A podium presentation on Military Nursing was a joint effort between the United States and Australian military nurses. All presentations were well attended. Other topics of interest included working with several member nations to develop military-focused educational tracks within academic health care settings. Colonel Turner will return to Viet Nam, in December of 2005, in conjunction with a Military Nursing Education project.

The 21-module Distance Learning Course Initiative, Public Health Issues ***in the International Environment,*** *was pilot-tested in April of 2005*. The initiative is a web-based educational activity sponsored by the United States Air Force School of Aerospace Medicine (USAFSAM)/International Health Program (IES), and USU. Its target audience includes medical, dental, biomedical science, and medical service officers, nurses, medical technicians, and associated personnel who anticipate future deployment and desire foundational knowledge or refresher training. It is planned to have this initiative fully integrated into the Air Force Integrated Learning Center, during 2005. The registration site course is open to all DoD personnel (Active Duty, Guard, Reserve, and civilians) who are registered in the DEERS database.

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The Center for Oral Health Studies.

Mission. The Center for Oral Health Studies is chartered by the TriService Dental Corps Chiefs Council to provide research and data collection services relating to the provision of dental care to all beneficiaries in the Department of Defense. The Center gathers, synthesizes, and distributes management information needed to develop oral health care policies and programs necessary to optimize the oral health of DoD beneficiaries and the operational dental readiness of service members. The Center provides consultative services to students and other faculty at USU regarding oral health research topics, general dental and oral health subjects, and data sources relating to dental care in the military. **Andrew K. York, DMD, MPH, CAPT, DC, USN, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics, continues to serve as the Director of the Center for Oral Health Studies.** CAPT York is licensed to practice dentistry in both Kentucky and Virginia. He holds *Diplomate* status with the American Board of Dental Public Health; and, he is a Member of the American Dental Association and the American Association of Public Health Dentistry.

Center Activities.

The Center's ***TMA-funded Dental Patient Satisfaction Program continued to be the military's sole source for assessing the satisfaction of patients with military dental care***. The Center received, compiled, and analyzed over 12,000 patient satisfaction survey forms each month, from military dental clinics worldwide. The staff developed and disseminated over 250 individual dental clinic reports each fiscal quarter. These quarterly reports allow clinic directors to identify specific areas for improvement leading to better service and patient satisfaction across the system. The DoD Dental Patient Satisfaction Program continues to be an integral part of the overall Military Health System (MHS) performance assessment.

A new, dynamic, web-based reporting system for the DoD Dental Patient Satisfaction Program was completed and deployed in early 2005. The system enhances the end-users' ability to identify areas of dissatisfaction among their patients. Since the reports are based on a representative sample of patient visits to each dental treatment facility, information regarding patient demographics and patient reported access to care are also provided.

In conjunction with members of the United States Air Force Surgeon General's dental staff, the Center developed the ***Dental Corps Optimization Manning Model***. It is currently being used to redistribute Air Force dental manpower based on the results of the Center's 2003 Dental Treatment Needs Survey.

The Center collected and analyzed patient encounter data collected by Air Force dental personnel while deployed in support of Operation Iraqi Freedom. Types of treatment required and the demographics of those patients requiring battlefield care were provided to the Office of the Air Force Surgeon General.

The Center continues to play a key role in the development of the reporting system and metrics for the dental module of the Military Health System's Composite Health Care System II (CHCH II). This future electronic dental record is slated to replace the paper dental records currently used across military medicine and will fully integrate dental and medical patient information.

The Center staff continued to play key roles in corporate military dentistry, as the primary source of military dentistry health services information. The Center's staff are members of many Integrated Product Teams (IPTs) associated with military dentistry, to include the following: the TRICARE Management Activity (TMA) Remote Active Duty Dental Program IPT; the TMA MHS Survey Workgroup; the TMA Reserve Dental Readiness IPT; the TMA CHCS II Dental Metrics IPT; and, the Air Force Personnel Reliability Program IPT. The Center staff also sponsored and organized the military session of the annual meeting of the American Association of Public Health Dentistry.

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The Center for Population Health.

Mission. The Center for Population Health is an integral part of the research, service, and educational activities of the Division of Health Services Administration in the USU SOM Department of Preventive Medicine and Biometrics. *The Center* ***provides expertise and experience in assessing*** *the quality of care for populations* ***and analyzing*** *large databases to determine trends in population health, the efficiency and effectiveness of care delivery, and the relationship of practice patterns to outcomes*. The Center also develops innovative educational curricula and provides training to Federal health care executives and managers to create, manage, and improve high quality systems. Using the skills and expertise of its personnel, *the Center also* ***provides consultation and assistance in health care quality assessment, performance improvement, and policy analysis***. **Galen Barbour, M.D., FACP, FACHE, Professor, USU SOM Department of Preventive Medicine and Biometrics, served as the Director for the Center during 2004.** Doctor Barbour is a Member of the following organizations: the American Federation for Clinical Research; (Member and Fellow of) the American College of Physicians; the American Heart Association; the American Society of Nephrology; the American Society for Artificial Internal Organs; the Society of the Sigma Xi; Alpha Omega Alpha; the American Institute of Nutrition; the American Society for Clinical Nutrition; and the American College of Healthcare Executives.

Center Activities. The Center is specifically *designed to enable Federal health care providers and administrators to access comprehensive, integrated, population-based performance information to facilitate quality improvement and cost reduction and demonstrate the value and power of the combined Federal health care systems to the American Public*. The following was included in the Center's summary report for 2004:

***Education and Training*.**

The Medical Executive Skills Program (MedExec). The Medical Executive Skills Program (*MedExec*) was designed in response to a Congressional mandate that current and prospective DoD health care leaders receive training in health care management and administration. Both face-to-face and distance learning are included in the program.

Integrating Clinical Managerial Decisions to Improve Population Health. This five-day, in-class portion of the *MedExec* Program is held five times each year throughout the continental United States and the Atlantic and Pacific TRICARE Regions. ***To date, 37 sessions have been held in the TRICARE Regions and over 1,000 senior officers have been trained for the Military Health System*.**

MedXellence Distance Learning Program. The MedXellence Distance Learning Program is an integral part of the *MedExec* Program. Several of the previous presentations have been developed into distance/distributed learning formats and are presented prior to the formal on-site class via web-based mechanisms. Learning accomplishments of the presentations are measured and reflected in the changes seen from a pre-test and post-test analysis using qualitative questions derived from the material in the on-site and web-based presentations. Implementation and evaluation of the MedXellence Distance Learning Program was expanded to include on-line modules. ***During 2004, three modules were added to the MedXellence***

Distance Learning Program: Patient Feedback; Executive Management of Clinical Investigation Programs; and, HIPAA. The Center added an additional session during 2004, presenting at five sites throughout the Continental United States and the Atlantic and Pacific Theaters. Modules in financial management and modeling, as well as family-centered care, have also been added to the MedXellence on-site classes.

Research Activities.

California Active Duty Tobacco Use Study. The Center completed the California Active Duty Tobacco Use Study in August of 2004, and reported the results to the Department of Health Services for the State of California. The Center results showed, among other things, that compared to similar California civilian subpopulations, active duty males ages 18-34 reported smoking twice as much, and that active duty females over the age of 45 reported smoking only two thirds as much. Active duty personnel are very aware of the dangers of tobacco use; and, they report smoke free environments at home and at work more often than their civilian counterparts. Based on these and other findings, the Center made recommendations concerning smoking cessation efforts that the California Department of Health Services could use to reach the military stationed in California.

Medicare Database. Final data analysis on three chronic disease cohorts from the Medicare database has been completed; and, a manuscript is in preparation. In addition, data analysis is proceeding for three surgical procedures.

Pediatric Bioterrorism Preparedness. The Center for Population Health received funding in the amount of $2 million from the Health Resources and Services Administration (HRSA) to study bioterrorism preparedness in the United States health care infrastructure. HRSA has requested that the Center evaluate exemplary practices in pediatric preparedness, as part of the Center's Bioterrorism grant. First, the Center was asked to compile a set of exemplary practices in pediatric preparedness and to write a report on those efforts, using a case study approach. The report was completed in December of 2004, and made available at a conference for HRSA awardees. In addition, the Center was asked to evaluate, during the Summer of 2005, to what extent those initiatives have been put into place in other states or localities. The Center is working with an advisory panel of experts in pediatric bioterrorism preparedness to identify exemplary initiatives, conduct site visits, and prepare the report. Second, working with the same advisory panel, the Center will construct a guidebook for pediatric bioterrorism preparedness that is planned for nation-wide distribution to assist states and health care organizations in their efforts.

Cancer Epidemiology. Preliminary results of the national epidemiological study of cancer for the United States Military Cancer Institute have been obtained and are driving re-extraction of some data elements and new analysis activities.

Student Research. The Center personnel are currently advising one MPH student project; this project will involve addressing the Military Health System (MHS) database through existing Center data use agreements within the MHS; and, it opens a viable avenue for future research.

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The USU School of Medicine Department of Military and Emergency Medicine and the Casualty Care Research Center.

The CCRC Mission is to serve as a unique national resource by providing quality research, education, and expertise in the delivery of good medicine in bad places.

- Mission Statement Approved by the President, USU, 1995.

Establishment and Mission. The Casualty Care Research Center (CCRC) was established in July of 1989, under the USU SOM Department of Military and Emergency Medicine as a center of excellence for injury control and casualty care research.

In keeping with the overall mission of USU, the scope of the CCRC activities have historically included the following: 1) conducting research and investigations on issues relating to injury control, casualty care, and operational and disaster medicine; 2) providing a disciplined, educational, research experience in combat casualty care, injury epidemiology, trauma management, and related areas to medical students, graduate physicians, and other uniformed medical personnel; 3) serving as a repository of resources and information relating to injury control, injury epidemiology, and operational medicine for the Uniformed Services; and, 5) providing research, resource and educational support, technical assistance, and other community service to USU, the Uniformed Services, and other Federal, State, and local elements.

With the creation of the Department of Homeland Security, it became clear that the role of bridging the gap between DoD and civilian emergency responders for the coordination and sharing of critical, operational medical knowledge, technology, and expertise could be more effectively executed by partnering with the new Department. In October of 2004, USU stood down most of its CCRC, while the Department of Homeland Security, Immigration and Customs Enforcement, Federal Protective Service, established the Special Operations Division, Protective Medicine Branch to assume many of those responsibilities, including operational support to Federal law enforcement and most of the educational programs originally developed by the CCRC. USU now has a strong new partnership with the Special Operations Division, Protective Medicine Branch and works jointly to ensure continued benefit to DoD, particularly in education and research.

The Center operates on both extramural and appropriated funding; the CCRC is currently staffed by a medical officer and a non-commissioned officer (NCO) who serve as liaisons to the Special Operations Division, Protective Medicine Branch, and focus primarily on resident physician and medical student education, capturing lessons learned in defending the homeland, and medical research of mutual benefit and interest.

Core Military Competency. The location of the CCRC within the multi-Service environment of USU, with its emphasis on education and development and scientific studies is critical to the development and sustainment of the CCRC's ability to maintain its core competency - *the capability to provide military-unique, medical expertise and experience required by both uniformed and civilian emergency/health care responders to weapons of mass destruction (WMD)-related and other national security contingencies*. Only DoD has a self-renewing source of physicians and other medical personnel with interest and experience in

these areas. USU, through its students in the School of Medicine and the Graduate Education Programs, and its career-focused faculty and staff, plays a vital role for the DoD in the renewal process of militarily-focused and experienced health care providers. The University ensures continuity and leadership for the MHS; and, the CCRC's core competency plays an essential role in that equation.

Contributions to Homeland Security - The Counter Narcotics and Terrorism Operational Medical Support Program. Since 1989, the CCRC has successfully served as a bridge between DoD and Civilian Emergency Responders for the coordination and sharing of critical, operational medical knowledge, technology, and expertise. Initially, this CCRC Program was a cooperative effort between USU, the Department of Defense Office of Drug Enforcement Policy and Support, the Henry M. Jackson Foundation for the Advancement of Military Medicine, and the Department of Interior, United States Park Police Special Forces Branch. From 1990 through 2001, the CCRC Program was continuously funded by the Office of Drug Enforcement Policy and Support, which reported through the Assistant Secretary of Defense for Special Operations/Low Intensity Conflict. Responsibility for this program was transferred, in October 2004, to the Department of Homeland Security's Office of Protective Medicine; however, USU's CCRC will continue to contribute expertise and academic input to ensure continued military relevancy and access for DoD personnel requiring this training.

The Counter Narcotics and Terrorism Operational Medical Support Program focus is on the crisis management response to: *weapons of mass destruction (WMD); counter terrorism; protective operations; hostage rescue; explosive ordnance disposal; maritime operations; civil disorder; and, major national security events*. Prior to its transfer, this program had trained over 6,000 civilian emergency personnel from 750 agencies through collaborative support agreements with law enforcement organizations from all 50 States, the District of Columbia, Guam, Puerto Rico, the United States Virgin Islands, England, Denmark, and Canada. Forty local, State, and Federal law enforcement agencies mandate this certification-based training as a condition of employment for their SWAT medics.

The Program provides *military-relevant, national standard, assessment-driven curricula; certification; and, a quality assessment process* that exist nowhere else. Its unique Special Operations Injury Epidemiology Database, the only database of its kind, ensures both effectiveness and relevance during the generation of assessment-driven curricula; and, it provides information and data for research on injuries incurred during the crisis management of domestic contingency operations.

The CCRC has received multiple testimonials from faculty and students who attribute their success in planning medical support for the deployment of military units in the field directly to knowledge gained at the CCRC.

The location of the CCRC within the University and its strong liaison with the Department of Homeland Security ensures academic oversight and credibility for the Congressionally mandated collaboration between DoD and the civilian emergency personnel community.

WMD Scientific Training Programs. The CCRC provided a family of seven WMD medical educational programs to meet the needs of a variety of communities over the past year. These included: ***Responding to WMD for Health Care Facilities***; ***Responding to WMD for Public Safety Personnel***, ***Responding to WMD for Health Care Providers***, and ***WMD Awareness: What Everyone Needs to Know***. These programs have been highly acclaimed because of their effectiveness and efficiency. The

public safety programs will be continued by the Department of Homeland Security's Special Operations Division, Protective Medicine Branch and CCRC's efforts will be devoted to developing on-line training for emergency medical services.

The Wound Data and Munitions Effectiveness Team (Vietnam) Database (WDMET) - A Unique Resource. The Wound Data and Munitions Effectiveness Team (Vietnam) database (WDMET) was maintained by the CCRC and remains a USU asset. It contains information on the tactical engagement, weapons employed, resulting injuries, and treatment in the pre-hospital and hospital environments on approximately 8,000 combat casualties. ***It is the only collection of its kind in the world.*** Photographs, medical records, X-rays, recovered bullets and fragments make this a unique resource, which has been studied extensively, resulting in numerous scholarly publications since the establishment of the Center. Most recently, the WDMET data has been used to support the *Persistence in Combat Project*, which is sponsored by the Defense Advanced Research Project Agency (DARPA). This database is currently housed by USU, but there are no support staff to facilitate access to this historically valuable set. Further evaluation will be undertaken to determine if USU wishes to maintain the WDMET in its collection.

CCRC Mission Support Center and Operational Medical Support. The activities of the Mission Support Center have been assumed by the Department of Homeland Security's Special Operations Division, Protective Medicine Branch. Through a collaborative agreement, USU retains access to the Mission Support Center for teaching and research purposes.

CCRC Emergency Medicine Resident Rotation. The CCRC's Emergency Medicine Resident Rotation in Operational Medicine Course, initiated in 1992, is a four-week elective for military emergency medicine residents. One Hundred and nine active duty emergency medicine residents, six active duty staff physicians, six civilian physicians, and three physician assistants have completed the course. It consists of successful performance in the one-week Counter Narcotics and Terrorism Operational Medical Support (CONTOMS) Program EMT-Tactical School, when it is available, followed by temporary duty at the CCRC and the Special Operations Division, Protective Medicine Branch. While assigned to the CCRC, the emergency medicine residents deploy on actual support missions, complete short research projects, and generate *white papers* on topics such as antibiotic selection, malaria prophylaxis in high risk special operations, and field laboratory diagnostics for chemical, biological, and radiological incidents. Residents from the Joint Service (Army/Air Force) Emergency Medicine Residency Program in San Antonio, Texas, complete the elective as a requirement for their residency training. ***New agreements were initiated during 2004/5 between USU and Rush Medical College, Northwestern University Medical School, and the Darnall Army Community Hospital***. Future plans include the establishment of agreements with the Thomas Jefferson University Hospital and the University of Pittsburgh, during 2005. In addition to the military residents, CCRC receives requests for training from numerous civilian programs, including George Washington University, Case Western Reserve University, and the Genesys Regional Medical Health Systems, Lehigh Valley and SUNY Upstate.

CCRC Military Medical Field Studies Rotation. The Military Medical Field Studies Rotation at the CCRC accommodates up to twenty first-year medical students with prior service for the required military experience between the first and second years of medical school; if required by the Services, this number could be increased. Up to six, fourth-year medical students complete an elective rotation in operational medicine research at the CCRC each year; again, the number of students could be increased if required by

the Services. The operational experiences of the DHS Special Operations Division, Protective Medicine Branch are integrated throughout the medical school curriculum as tangible demonstrations of the medical science being taught. ***For example, a large part of the USU SOM curriculum on blast injury uses the first-hand experiences of the CCRC faculty acquired during their response to the embassy bombings in East Africa***.

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USU School of Medicine Department of Military and Emergency Medicine and the Center for Disaster and Humanitarian Assistance Medicine.

Establishment. The Center for Disaster and Humanitarian Assistance Medicine (CDHAM) was established in September of 1998, under the USU SOM Department of Military and Emergency Medicine (MEM) to advance the understanding and global delivery of disaster medical care and humanitarian assistance. The Center was established to ensure specialized expertise, consultation, training, education, and research for medical support activities that impact homeland defense, terrorism and disaster response, and humanitarian assistance. Personnel within the USU Department of Military and Emergency Medicine participate in various activities of the CDHAM based on their professional interests and as their teaching and clinical responsibilities permit. **Kevin S. Yeskey, M.D., Associate Professor, USU SOM Department of Military and Emergency Medicine, serves as the Director for the Center.**

Mission. The mission of CDHAM is to advance the understanding and delivery of disaster medical care and humanitarian assistance on a worldwide basis. Uniquely positioned as an academic center within the USU, the CDHAM has served as a focal point in the Military Health System to: 1) develop relationships between various governmental, non-governmental (NGOs), and private volunteer organizations (PVOs); 2) assist in the critical management of relief efforts in the medical response to weapons of mass destruction, terrorism, natural disasters, and humanitarian assistance contingencies through new developments in the areas of disaster and humanitarian assistance medicine (i.e., training in ultrasound imaging for disaster response and the development and use of PDA/handheld computer software platforms for disaster needs and assessment); and, 3) augment the training of military medical officers through specialized expertise, consultation, training in the field of Telemedicine, and medical informatics in relation to the austere environment, education, and research capabilities.

Center Activities. The CDHAM uses training, technology, and best management practices to improve military medical capabilities and readiness during disaster and humanitarian contingencies, especially through collaboration with the inter-agency process, the international medical community, and the host nation medical infrastructure and beneficiary populations. ***The CDHAM works closely with the Unified Combatant Commanders to meet its primary mission***. Such efforts generally involve direct liaison with other DoD humanitarian assistance centers to include the Center of Excellence (COE) for Disaster Management and Humanitarian Assistance under the United States Pacific Command (USPACOM) located in Honolulu, Hawaii; and, the Global Center for Disaster Management and Humanitarian Assistance (GCDMHA), University of South Florida, affiliated with the United States Southern Command (USSOUTHCOM), Miami, Florida.

In conducting studies and operations concerning local and global relief efforts, the CDHAM also works to expand relationships with other United States government agencies such as the United States Agency for International Development (USAID) and the Office of Foreign Disaster Assistance (OFDA/USAID), as well as international organizations such as the Pan American Health Organization (PAHO)/World Health Organization (WHO), and umbrella Non-Governmental Organizations (NGOs) such as INTERACTION. CDHAM continues to be actively engaged in various studies supported by the Department of Defense (DoD), the Unified Combatant Commanders, and other Federal agencies. A summary of CDHAM's activities during 2004 follows.

Administrative/Managerial Oversight. The CDHAM's mission and functions are principally executed using funds received through USU as a Congressional appropriation to support the advancement of understanding the global delivery of disaster medical care and humanitarian assistance across the DoD. Beginning in 2004, the USU established a new requirement for the CDHAM to develop an application for funds granted using the United States Department of Health and Human Services Public Health Service Grant Application (PHS 398). In meeting this requirement, the CDHAM implemented a four-tier hierarchy to define its program activities: 1) Core (funds to support the administration, strategic planning, marketing, project development, and pursuit of new extramural projects); 2) Studies and Evaluation; 3) Educational Development; and, 4) Operations and Training. To ensure the proper execution of Congressional funding, the CDHAM is required to participate in a Scientific Advisory Board (SAB) that is hosted by the USU Office of Research. The SAB evaluates the nature and application of CDHAM's academic, scientific, and operational pursuits. The program areas, except for the core, are more fully discussed below.

- STUDIES AND EVALUATION.

Studies and Evaluation (S&E) funding is utilized to advance defined, specific methodologies in operational humanitarian assistance/disaster response (HA/DR) settings and to permit the continued organization and access of information obtained from HA/DR settings.

After Action Reporting System. The After Action Reporting (AAR) project stems from a study published for the Assistant Secretary of Defense, Special Operations for Low-Intensity Conflict (ASD/SOLIC) to evaluate measures of effectiveness for humanitarian assistance and disaster relief (HA/DR) activities. CDHAM identified three reasons for developing a more effective AAR system:

- To better evaluate the stated mission objectives and measures of effectiveness and the performance of leaders and operators during HA/DR missions;

- To hypothesize shortfalls in planning, prevent operational failures, and offer recommendations for improvements on future missions; and,

- To provide specific information on points-of-contact, timeliness, costs, and deliverables.

While most organizations require some type of after action reporting, procedures to collect the information are not standardized. Also, retrieving reports is routinely complicated by problems in identifying the office primarily responsible for, or the location of, archived reports. To address these, and other shortfalls, the CDHAM held discussions with software developers and had follow-on conferences to evaluate the means to better define the deliverable. The CDHAM identified a software platform and established the necessary fields/elements for the system. The next phase of the project will be to develop the AAR software and pilot a validation study of the process(es).

To demonstrate program effectiveness, the CDHAM proposes to fund the start-up costs and invite Service participation in the utilization of the AAR system. As reports are posted, an analysis will be conducted by the CDHAM to compare the system to existing report methodologies. It is anticipated that there are numerous potential end-users in the civilian and military HA/DR communities. In the ASD/SOLIC

study, CDHAM reported that military and civilian providers of humanitarian assistance, both medical and non-medical, face similar challenges in measuring the effectiveness of their activities (*i.e.,* ***determining critical information that needs to be collected and transforming that information, in a timely manner, into management decisions that directly improve effectiveness***).

The Unified Combatant Commands (UCCs) need to have information, background, and training to make difficult decisions among many competing priorities for effective humanitarian assistance programs. The need to measure and improve the effectiveness of humanitarian assistance programs is widely recognized by the UCCs, therefore multiple potential partners exist, both within DoD and in the larger HA/DR communities (i.e., NGOs/PVOs). The technical requirements for the system include standard, commercial, off-the-shelf software (Microsoft Access and Internet capabilities), hardware (laptops), and store and forward methodologies (the Internet and satellite transmission capabilities). For future applications, the CDHAM intends to determine the applicability of the system for implementation into hand-held platforms being developed across other projects.

Humanitarian Training Program for the San Antonio Military Pediatric Center, Joint Pediatric Residency Program, Honduras, and Health and Nutrition Surveillance for Force Health Protection and Humanitarian or Disaster Assistance. This is a study being conducted in collaboration with the Honduran Ministry of Health and Joint Task Force Bravo (JTFB) in Honduras. The protocol uses procedures to: evaluate Honduran fortified foodstuffs; complete nutrition assessments of children ages 6 to 59 months; assess anemia status; pilot test the use of dried blood spots for analysis of retinol, retinol binding protein, transferrin receptor, and C Reactive Protein (CRP); and, utilize hand-held computers to collect survey and clinical evaluation data and transmit that data via satellite. With funding sponsorship by CDHAM, evaluations are conducted three times per year through coordination with: the Honduran medical liaison; the Joint Task Force Bravo; the USSOUTHCOM; the Honduran Ministry of Health; and, the Joint Pediatric Residency Training Program at Wilford Hall, San Antonio, Texas. The JTFB Medical Element provides logistical support to include transportation, communication in the field, and security. A registered dietitian accompanies each mission for consultation and training on the research methodology, surveying techniques, macro and micronutrient malnutrition assessments, and the use of anthropometric and blood collection equipment. ***The provided research, medical and nutrition assessment, deployment, and readiness training supports pediatric residents, medical students, MPH students, junior dietitians, and medics***.

Rural locations/villages throughout Honduras, prioritized in collaboration with the Honduran Ministry of Health and Honduran medical liaisons at the JTFB, are selected for each training mission. Overall, the purpose of this study is to:

- Determine the fortification level of a variety of fortified foodstuffs within Honduran food;

- Utilize hand-held computers to collect survey and clinical evaluation data and transmit that data via satellite;

- Complete nutrition assessments of children ages 6 to 59 months and determine the prevalence of anemia; and,

- Pilot test the use of dried blood spots (DBS) for analysis of retinol, retinol binding protein, transferrin receptor, and C Reactive Protein (CRP).

The project focuses on children's health and is designed to assist in eliminating health disparities among special ethnic populations. ***The continued collection of health and nutrition assessment-based research data will help to target the most at risk population groups and will validate requirements for public health and nutrition interventions***.

Automated Disaster and Emergency Planning Tool. There is a need for a standardized public health and medical planning process to address emergencies that may involve a wide range of hazards: natural; technological; and, terrorism. Public health and hospital officials face many challenges for efficient and effective planning, to include limitations on time and the background knowledge necessary for evidence-based decision-making. In addition, public health and medical emergency plans must address a wide range of possible contingencies, yet remain *user-friendly* and widely accessible.

The Centers for Disease Control and Prevention (CDC) Automated Disaster and Emergency Planning Tool ***(ADEPT) is an innovative software-based process for writing, exercising, and evaluating public health and medical emergency operations and disaster plans***. This process integrates all-hazard planning with the internationally accepted SPHERE standards for disaster response as well as nationally accepted models like the National Incident Management System (NIMS), Continuing Quality Improvement (CQI), and the Hospital Emergency Incident Command System (HEICS). ***The tool guides the user in assigning tasks and performance indicators for each disaster function***. ADEPT can be used on a laptop or PC computer and is being developed through support by the CDHAM for hand-held PDA applications.

The ADEPT applies evidence-based objectives to the process of disaster planning so that subsequent responses can be measured for effectiveness and validated according to the emergency operations plan itself. The CDHAM has funded Phase I of the ADEPT conversion for use as a document management interface to support controlled access and distribution of commonly-shared disaster and emergency response documents. Phase I also includes the following:

- The On-line Document Management System will be integrated with the ADEPT Portal Solution Implementation for the secure delivery of reference materials and other resources to both public and private entities;

- Administrative Interface is integrated directly with the Website Portal. When end-user administrators log in, they will see only the sections that they have access to administer in an editable format; the same holds true for the end or group-user;

- End-user Interface will be provided to include the *Interview* or *Wizard* process for stepping through the establishment of custom critical disaster and emergency management procedures (Custom Section Content administration); and,

- Integration of Custom Section Content with Standard Reference Documents stored in document management interface will also be provided.

Initially designed for national health agencies and hospital applications, ADEPT will have broader applications in both the domestic and foreign settings, to include complex emergencies and comprehensive national response planning.

- EDUCATIONAL DEVELOPMENT.

Educational Development (ED) funds support the continued development of educational materials for health and medical personnel responding to HA/DR incidents; they are ***continuously updated to reflect current knowledge, formatted to best accommodate web-based delivery systems, and modified to address new scenarios such as peacekeeping operations***.

Military Medical Humanitarian Assistance Courses. Of ten *Military Medical Humanitarian Assistance Courses (MMHAC)* initially developed by the CDHAM, six are in final preparation for conversion into web-based programs. The content of the courses is being updated from lesson plans originally developed during 2001-2002. While the definitions and the military's view of complex emergencies have not changed much concerning basic dialog, the execution and response by the DoD has continued to evolve. The introductory lectures of many of the courses of instruction are being reevaluated in accordance with current language and policies.

From available materials, six courses are considered ready for web-based conversion; these were ranked using the following prerequisites:

- Immediate availability for HTML conversion for web presentation;

- Availability of materials, including electronic copies of reference materials and examinations;

- Current application to disaster management; and,

- Organization and structure of the course material.

Beta test versions of courses ready for piloting via CDHAM's homepage on the World-Wide-Web are being finalized and just-in-time instructional curricula will soon be available for utilization by DoD commands and other first responder activities.

Operational Course of Instruction in Telemedicine. The CDHAM operates a demonstration course intended for personnel to gain a broader overview on the use of telemedicine in austere environments that would be useful to users of satellite communications in deployed settings. The course has been in existence since 1995; it consists of six hours of lectures, demonstrations, and small *hands-on* practical sessions; it provides closer insight into the clinical and technical skills required for the successful practice of telemedicine. The CDHAM faculty is comprised of military and civilian medical and technical personnel who have extensive experience in teaching and practicing telemedicine.

Disciplines within the medical sciences currently using telemedicine technology such as Radiology, Pathology, Psychiatry, Dermatology, and Cardiology are briefly discussed. Following the medical portion, other uses for deployable telemedicine systems are outlined, to include applications of the PCOST (Portable, Commercial, Open-Standards Telemedicine) System for use in disaster response and management, and integration of RLANS (Remote Local Area Networks) for data collection and management. The sessions

lead into an overview of equipment, followed by a basic *Spectrum of Telemedicine* session, that encompasses all of the various communications modalities used and how they relate to equipment on display.

The usage and integration of medical devices (Scopes-Sonosite) lesson follows, along with a demonstration of dental, dermatological, and otoscoscopes. At the conclusion of the scope sets demonstration, an introduction and use of the Sonosite portable ultrasound, in conjunction with the Gaumard, is presented. The demonstrations are intended to encourage audience interaction with the instructors and equipment in various formats (i.e., placing satellite calls, conducting video teleconferencing communication, and experimentation with the scope sets).

Kerkesner and Bushmaster. The CDHAM staff continues to support the education of USU medical students during the first-year (*Kerkesner*) and fourth-year (*Bushmaster*) operational training courses. Live demonstrations of telemedicine equipment and medical informatics in relation to the austere environment are presented under actual field operating conditions. CDHAM will continue to support the USU field exercises as the University transitions into one consolidated field training exercise.

NGO Guide and Briefings to USU Fourth-Year Medical Students. The CDHAM regularly participates in the USU fourth-year medical student training curriculum by providing a lecture on NGOs and their relationship to the United States military, based upon its publication, *Guide to NGOs: A primer about private, voluntary, non-governmental organizations that operate in humanitarian emergencies globally*. The CDHAM publication is an instructional reference that deals with NGOs, often referred to as private volunteer organizations (PVOs), non-profits, charities, or aid organizations. Actively involved in humanitarian emergencies globally, the role of NGOs and their interaction with DoD, which has become increasingly involved in HA/DR operations, is described and discussed in CDHAM's 247-page reference work. Designed to orient a wide range of readers with NGOs, their operations, strengths and limitations, budgets, practices, and other characteristics that make them unique across the humanitarian assistance community, ***the publication is a timely reference since it also includes two annexes dealing with NGOs in Afghanistan and Iraq***. The CDHAM distributed 100 copies to the United States Army Peacekeeping Institute, during the 2004 Academic Year. Additionally, 30 copies were provided to the military services general officer orientation courses; and, over 100 copies were made available to various military service academies, training and doctrine centers, Unified Combatant Commands, and service-specific command libraries. Finally, 100 copies were provided to the Joint Medical Planners Course (JMPC) where it is used as an integral part of the training curriculum.

- OPERATIONS AND TRAINING.

Operations and training funds provide support to on-going HA/DR projects within the Unified Combatant Commands and provide training to USU students and DoD medical personnel in residency programs.

Support to Unified Combatant Commanders. The CDHAM maintains close working relationships with four of the five unified combatant commands - ***USSOUTHCOM***, ***USNORTHCOM***, ***USEUCOM***, and ***USCENTCOM*** - that have responsibilities for parts of the globe proximal to USU. The function of operations and training support varies from providing simple telephone consultation in response to questions

about HA/DR missions, to support with mount-out sets that incorporate telemedicine capabilities, to full-scale deployment of personnel for training and/or the implementation of management efforts for a medical response in support of a disaster or humanitarian relief operation. Some examples follow:

- Assisting a USSOUTHCOM team in conducting a National Disaster Preparedness assessment in Paramaribo Suriname;

- Assisting in the development of the SOUTHCOM-GCDMHA/USF sponsored INTERHANDS Program; and,

- Providing consultative services to the USSOUTHCOM Command Surgeon and the J4 Disaster Preparedness Program staff.

CDHAM and the United States - Mexico Border Health Association. The CDHAM has been affiliated with the United States - Mexico Border Health Association (USMBHA) for more than four years. In planning for the association's upcoming 63rd Annual Meeting, CDHAM attended a planning conference during a local "Los Dos Laredos" meeting. CDHAM will serve as a co-host, along with the DoD Global Emerging Infections and Surveillance System (DoD GEIS), to present a pre-conference workshop entitled, ***Influenza: Understanding a Global Threat***, in Laredo, Texas, during 2005.

CDHAM's Homepage and the On-Line Disaster and Humanitarian Assistance Portal. The CDHAM homepage on the World-Wide-Web, ***www.cdham.org***, provides information about the CDHAM mission and functions and enables users to access CDHAM resource materials and links to other HA/DR information pages. One feature on the CDHAM website is the capability to support web-hosting of real-time discussions of timely and relevant topics via the ***Disaster Management Zone (DMZ)***, as well as serving as a vital link to personnel or organizations involved in HA/DR activities anywhere in the world. Another vital link on the CDHAM homepage is the ***On-Line Disaster and Humanitarian Assistance Portal (ODHAP)***, a forum to provide rapid access - *two mouse clicks* - to a current listing of over 365 reference sites in 45 different categories dealing with relevant disaster response and humanitarian assistance topics.

To enhance the Center's capacity to execute its mission and functions, the CDHAM incorporated many new technologies to improve staff interaction on external projects and within the Center. The principal piece of the upgrade was the implementation of Microsoft SharePoint technologies to create a common portal for staff members. This feature gives CDHAM efficient and effective utilization of a system for announcements, a calendar for meetings and appointments, and a Microsoft Windows Messenger that allows communication between staff in a real-time chat environment. The latest technology to be added was Microsoft's Project and Project Server that allow staff to organize project timeliness, tasks, and resources and provides an on-line workplace for project organization. These technologies have all combined to help the CDHAM become more innovative and responsive to its support base.

XXXV International Congress on Military Medicine. The CDHAM was a paid exhibitor at the 35th International Congress on Military Medicine, hosted by USU in Washington, D.C., on September 12-17, 2004. The CDHAM's exhibitor synopsis read, ***By focusing on medical aspects of disaster and humanitarian assistance, CDHAM supports military medical readiness with training, technology, and best management practices and researches real-world opportunities for learning and improvement***.

The international meeting was attended by over 450 military representatives from 60 countries. CDHAM products and publications, including CD-ROM versions of the *Measures of Effectiveness* study, the *Rapid Assessment* study, the *Guide to NGOs*, and the *Medical Preparedness and Planning for Man-made Disasters* workshop were distributed freely to all attendees.

Center for International Rehabilitation Symposium. The CDHAM sponsored five persons, CDHAM faculty and other subject matter experts, to participate in the ***Second Regional Conference, Meeting of Experts: Reaching People's Needs by Building Partnerships in Technology and Integrated Rehabilitation, held in Mexico City, Mexico, on October 13-15, 2004***. The objectives of the conference were to: determine the needs of rehabilitation and disability institutions in Latin America; develop relationships among public safety, health care, and educational communities; and, encourage a local, sustainable approach toward rehabilitation and disability. Break-out sessions led by rehabilitation experts and persons with disabilities explored topics related to: First Emergency Responders (FERs); the Center for International Rehabilitation (CIR) Engineering Research Center; Disability Rights and Research in the Americas; Early Childhood Screening; and, Telemedicine and Teleconsultation. The three-day conference convened experts from the public health, science, and data gathering fields, as well as technology and tools from various partners involved in rehabilitative services. Over 30 regional and international organizations, including the International Committee of the Red Cross and Handicap International, were represented.

United States Air Force Reserve and National Guard Component Education and Training Work Group. The CDHAM continues to be actively involved with a working group originally hosted by USU to address the topics of training, education, and certification programs for health care providers and emergency responders in the United States Air Force Reserve and National Guard Components. The CDHAM is actively pursuing means to serve as a resource for developing and operating web-based training for the Guard and Reserves as part of its homepage on the World-Wide-Web.

Support to Honduras. The CDHAM provided funding support for a rotation of two fourth-year USU medical students through the USU SOM Department of Military and Emergency Medicine to participate in the nutrition-based study in Honduras.

Support to USU MPH Students. The CDHAM sponsored efforts for one United States Air Force International Health Specialist (IHS) Master of Public Health (MPH) graduate student at USU to work on a project that examined after-action reporting for the DoD Office of Low Intensity Conflict. The IHS/MPH intern was given technical in-put and provided project review as well as academic guidance on his project, which was in partial fulfillment of his IHS/MPH Degree sponsored by the USU SOM Graduate Education Programs. In addition, the CDHAM faculty provided technical guidance concerning DoD's response to HA/DR deployments as well as participating as a member on a thesis review board for one United States Army student in the USU MPH Graduate Education Program.

Joint Special Operations University. The CDHAM provided two lectures during the Fiscal Year 2004 Academic Year for the Joint Special Operations University (JSOU), specifically on the topics of the military medical response to complex emergencies, as well as an update on the medical concept of operations during *Operation Iraqi Freedom*. The CDHAM also sponsored one fourth-year USU medical student to attend the ***JSOU Medical Officers Orientation Course*** at Hurlbert Field, Florida.

The Veterans Administration Employee Education Steering Committee for Public Law 107-287. The CDHAM provided support for numerous meetings to the Department of Veterans Affairs (VA) as part of an effort to develop training for employees in response to Public Law 107-287, which addresses the VA's responsiveness and facility preparedness against bioterrorism following the events of September 11, 2001. The CDHAM represented the USU at all Sub-Committee Chair and Working Group Conferences on topics dealing with biological agents, chemical agents, radiological weapons, mental health/stress management, and explosive agents/blast injuries.

Department of Homeland Security and the Veterans Affairs Briefing. The CDHAM participated in USU hosted briefings to representatives from the Departments of Homeland Security and Veterans Affairs concerning programs for bioterrorism planning and responsiveness.

Deployment/Contingency Operations Support. The CDHAM Associate Director for Strategic Information and Operations deployed to Iraq for four months during the Summer of 2004 **as the CFSOCC Command Surgeon** to support the Iraqi counter-terrorism force training and employment.

Extramural Sponsored Funding Support. The CDHAM funding is also derived from various extramural support activities that address specific concerns for humanitarian assistance and disaster response world-wide. In the case of extramural contracts, fund sponsors request the CDHAM to prepare a Statement of Work to provide specific deliverables for a specified funding amount over a specific period of time. Extramural projects currently being executed are described below.

Defense Monitoring and Evaluation of the DoD HIV/AIDS Prevention Program in Africa. The CDHAM is being funded by the Navy Health Research Center (NHRC) in San Diego, California; NHRC is the executive agent for the DoD HIV/AIDS Prevention Program (DHAPP). The CDHAM is conducting an evaluation and analysis of the Program with a focus towards the validation of the current business plan and execution of program dollars since the establishment of the DHAPP in Fiscal Year 2000. The CDHAM reviewed the DHAPP Program through a series of on-site visits, documentation review, and programmatic comparisons against similar programs. The major areas reviewed and discussed were DHAPP history, policies and procedures, contract review and selection procedures, documentation, and literature and library resources. A series of reports were developed that focus on a common goal to promote program improvement and continuation.

To monitor the progress of the DHAPP, the CDHAM used a number of effective and proven monitoring and evaluation (M&E) methods to define program areas and appropriate indicators that would enable the DHAPP program managers to measure program performance. Specific goals summarized for DHAPP were the establishment of a baseline of program descriptions and program goals for DHAPP to facilitate further development of a DHAPP M&E Plan, and the adoption of existing, successful global M&E methods and program goals to monitor and evaluate the DHAPP program areas. To achieve this objective, the CDHAM assisted the DHAPP by: 1) developing an M&E purpose statement; 2) defining HIV/AIDS intervention areas within the DHAPP; 3) developing a program objective hierarchy; and, 4) defining program goals.

The CDHAM developed and implemented a 188-page M&E plan in CD format for the DHAPP that outlined 13 unique HIV/AIDS activities in three major themes (prevention, care, and treatment). The entire

plan was supported by 34 external support documents from the United Nations, the United States, Non-Government Organizations, and selected countries. Additionally, the project resulted in the publication of *The Military to Military Connection: Combating HIV/AIDS among African Militaries, Part I - A Risk to Regional Stability and Security and the Impact on the Uniformed Services* that appeared in the 2004 Fall Edition of the Journal of Special Operations Medicine.

USSOUTHCOM Assessment of HIV/AIDS Prevention Program Activities for Select Caribbean-basin Countries. The CDHAM, in collaboration with the Global Center for Disaster Management and Humanitarian Action (GCDMHA), University of South Florida, was requested by USSOUTHCOM to perform a needs assessment of select Defense Forces/Military organizations related to its current HIV/AIDS Prevention Program activities. A secondary focus of discussion centered on treatment and care issues of the military members and beneficiaries.

The United States military is called upon, with increasing frequency, to participate in both domestic and international disaster response and other humanitarian assistance with an inevitable major focus on the provision of medical and health services in austere environments; and, it has developed numerous initiatives to support affected countries. In the global war against HIV/AIDS, military-to-military programs are an important element of the overall national program, which is often not addressed within this framework. It is this *niche* group that is the focus of the effort with an aim to improve HIV/AIDS Prevention Program activities such as education and training for the military. Additionally, CDHAM's review of processes utilized by DHAPP and the development of effective monitoring and evaluation (M&E) programs, will improve the response against the world-wide threat of AIDS with specific emphasis in the Caribbean, as well as to ensure better assessment techniques, prevention programs, and training of affected populations. These benefits will ultimately accrue to all military and civilian HIV/AIDS prevention efforts.

Specific activities by CDHAM in support of USSOUTHCOM included travel to seven countries identified by USSOUTHCOM to assess and provide recommendations on the programmatic elements of the host nation's military services HIV/AIDS Prevention Program. ***As part of CDHAM's role as USSOUTHCOM's lead agent in the execution of this initiative, the CDHAM attended the 3rd Annual Caribbean Region Chief of Missions Conference on HIV/AIDS held in the Dominican Republic at the invitation of USSOUTHCOM.***

Global Emerging Infections Surveillance and Reporting System. CDHAM collaborates with the DoD Global Emerging Infections Surveillance and Reporting System (GEIS) Program to support information gathering concerning diseases and related threats, as well as humanitarian assistance/disaster response (HA/DR) or disaster preparedness (DP) events resulting from *natural* phenomena or technological (*man-made*) activities. The CDHAM and GEIS share data and reports from projects, trips or activities conducted on behalf of the Unified Combatant Commands.

The CDHAM services involve the part-time utilization of a staff Special Project Officer who focuses efforts on developing a network of support between CDHAM; GEIS; USSOUTHCOM; the Naval Medical Research Command Detachment (NMRCD) in Lima, Peru; the Pan American Health Organization/World Health Organization (PAHO/WHO); and, military and civilian organizations/agencies in Latin America and the Caribbean, as appropriate. This individual endeavors to: 1) enhance inter-agency collaboration and cooperation; 2) create opportunities to leverage various resources to jointly develop and support disease surveillance initiatives; 3) support the enhancement of early disease surveillance warning systems; 4) advance and support HA/DR/DP initiatives; 5) attend national and international meetings, conferences, and

workshops concerning disease surveillance, bioterrorism, and related activities sponsored by select military and civilian agencies; and, 6) support various projects on location when traveling in support of CDHAM activities. Specific activities in support of the GEIS include:

- Assisting USSOUTHCOM with the Pan American Health Organization Disease Surveillance Workshop for Central America;

- Attending the USSOUTHCOM-Pan American Health Organization (PAHO) sponsored Central America Disease Surveillance Workshop in Managua, Nicaragua;

- Coordinating and attending a meeting concerning collaborative efforts between the Command Surgeon, USSOUTHCOM, and the United States Navy Medical Research Center Detachment-Peru;

- Coordinated meetings between the Director, GEIS, and representatives from the Pan American Health Organization;

- Coordinating and developing plans, to include the agenda, for the pre-conference workshop entitled, *Influenza: Understanding a Global Threat*, for the 63rd Annual Meeting of the United States - Mexico Border Health Association (USMBHA) held in Laredo, Texas, in June of 2005; and,

- Working with the Military Liaison Officer to the World Health Organization to develop a pre-conference workshop on Influenza, originally intended to take place in conjunction with the Asian-Pacific Military Medicine Conference, in Hanoi, Vietnam; however, this pre-conference workshop has been postponed at a date to be determined.

USEUCOM Humanitarian Mine Action - Mine Victims Assistance. The Republic of Chad is faced with the significant challenge of ridding the country of land mines and unexploded ordinance (UXO) and managing the public health and medical consequences resulting from human encounters with these weapons. The country has been engaged in a de-mining effort for years. A United States Government (USG) sponsored Humanitarian Mine Action (HMA) assistance program has been implemented in Chad. Through the United States European Command (USEUCOM), assistance has focused on training manual de-miners and UXO specialists. USEUCOM has now proposed a program of Mine Victims Assistance (MVA) in Chad. The country currently manages a national program for de-mining (HCND); however, the effectiveness and sustainability of the program is uncertain due to limited funding and training available to its personnel and the reliance on UNDP technical support. It is the intent of USEUCOM to provide assistance in the development of the HCND in the form of sustained training, material resources, and technical guidance.

Similar MVA projects have been successfully implemented in other parts of the world. In 1998, the United States Central Command (USCENTCOM) implemented a humanitarian de-mining training program, including a victim's assistance program (VAP) in Yemen. The VAP should be considered a central component of any de-mining project; however, many social and economic factors impede the implementation of such sustainable programs. The USCENTCOM program in Yemen included victim injury data collection, which was used to determine specific victim needs and to implement medical training programs for Yemeni providers. Infrastructure needs were also assessed, in cooperation with host nation government officials and international agencies.

The USU CDHAM was instrumental in establishing the VAP in Yemen. CDHAM developed the mine victim injury database that included the capacity to document injuries through digital images. Database development included standard operating procedures (SOPs) to assist with sustainability and to maintain patient confidentiality. The SOPs were translated into Arabic for use by local collection personnel. CDHAM staff deployed to Yemen to perform training of local personnel in the use of the database and other techniques. Additional deployments were conducted to supervise the initial use of the collection tool by local collectors. CDHAM staff also organized and coordinated the deployment of medical specialists who assisted in the training of medical personnel and evaluating victims. Recommendations were made for the purchase of equipment for the host nation medical referral centers. CDHAM staff conducted additional on-site visits to work with the United Nations, non-governmental organizations, and United States organizations to assess the on-going activities.

CDHAM will work with USEUCOM to develop a sustainable, effective HMA program within the HCND, Government of Chad. Using experience from previous mine victim assistance activities in Yemen and its contacts with medical subject experts, CDHAM will participate in planned site visits to assess training and equipment needs and to evaluate medical operations, to include host-nation treatment capabilities and clinical facilities. CDHAM will develop a mine victim database and recommend to USEUCOM the necessary prosthetics and other equipment needed in the rehabilitation of victims. Additionally, CDHAM will develop and implement the necessary training for the United States DoD medical personnel assisting with the USEUCOM program. Depending upon available funding and requests for service by USEUCOM, CDHAM will provide on-going oversight to the Government of Chad HCND program to ensure that the program remains sustainable by the host nation and that additional training of United States DoD medical elements occurs.

Weapons of Mass Destruction Distance Learning Program. CDHAM and the USU SOM Department of Psychiatry received funding during Fiscal Year 2005 as a special congressional appropriation for the development of a weapons of mass destruction (WMD) distance learning program for civilian first responders and health care providers. This collaborative initiative for assisting emergency responders and health care providers in the preparedness for, and recognition of, a WMD incident will be a multi-disciplinary, interactive, quality assured, and tiered program leading to the awarding of continuing medical education (CME) credits, continuing nursing education (CE) units, and certificates of completion. The program is designed to reach a broad spectrum of uniformed and civilian students within the health care community, Federal health care responders, and others in the medical response community. The four primary disciplines include (but are not limited to) physicians, nurses, administrators (health care executives, emergency managers, city/county managers, etc.), and pre-hospital staff (law enforcement, emergency medical technicians, fire, hazmat, etc.). The program will be open to the public, free of charge, and available for anyone interested in enrolling. Collaborative relationships have been developed and subject matter experts identified with the United States Northern Command (USNORTHCOM), the Reserve Components, the Department of Veterans Affairs (VA), the Office of the Secretary of Defense (OSD), the United States Public Health Service (USPHS), the Center for Disease Control and Prevention (CDC), and the Association of Academic Health Centers.

The three-tiered program will consist of a family of activities as follows:

- **The First Tier, called the *Field Guide***, *will consist of a series of brief management guideline summaries that could be copied and used by providers to assist in the diagnosis and field and clinical management of casualties*. These guidelines will be compiled from the most current references, including those issued by the Centers for Disease Control and Prevention (CDC). This material will be reviewed by recognized subject matter experts and will be the most easily accessed. This tier will not require registration or user ID.

- **The Second Tier** of information *will consist of more extensive reference material and will provide in-depth coverage of various agents* of concern. Links to other reference material and other appropriate sites will be available in this section. This section, referred to as ***the Library***, will not require user registration. Submissions for this section will be reviewed by subject matter experts for currency and appropriateness.

- **The Third Tier** *will consist of **courses** that are related by agent category*. Submissions for this section will be reviewed by subject matter experts for currency and appropriateness. Categories include: Biological Agents; Chemical Agents; Radiation/Nuclear Agents; and, Explosive Agents. Within each category, there will be agent specific sections in the form of an overview followed by interactive case scenarios that are discipline specific. *Access to the **courses** will require user registration and an ID code*. Users will log on and be automatically directed to the discipline specific case scenario material, based on the registration material provided. As categories are completed, certificates of completion will also be automatically awarded/provided. The sections and courses will have pre- and post-tests. Six months after the completion of a course, a test will be electronically sent that will serve as an evaluation of retention and provide refresher material, as appropriate.

The technology is being developed to capture/break out totals for*:** uniformed or civilian recipients of the training; the primary disciplines of the students (*physicians, nurses, administrators (health care executives, emergency managers, city/county managers, etc.), and pre-hospital staff (law enforcement, emergency medical technicians, fire, hazmat, etc.*); completed training by states and districts; organizations represented; CME/CE credits, units, and certificates issued by discipline; and, customer satisfaction information. ***This data will be used to determine the cost avoidance generated for DoD through this USU initiative. The program is self-paced (i.e., the program will allow a paramedic to stop in the middle of his/her training session to respond to an emergency and, upon his/her return, will bring the student to the place where the training had to be stopped, while saving any input that may have already been entered by the student).

The first phase of the WMD program will focus on Radiation/Nuclear incidents. The following five learning objectives will be introduced through the program's case studies for a Radiological Dispersal Device (RDD) event: awareness; management; integration; command; and, communication. Case studies used in the program will include the following scenarios: a radiological dispersal device (RDD) incident including *dirty bombs* with radiation exposure and/or contaminated wounds; and, accidental exposure. Subject matter experts were carefully selected to provide expertise and content for the four primary disciplines. CDHAM provided all SMEs with 1) an instruction manual on how to develop course objectives, test questions, adequately sized lessons, and reference lists; 2) an initial draft of an RDD case study; and, 3) assignments to submit detailed discipline-specific dialogue, lessons with test questions, references, and other materials

(glossaries, synopsis, etc.). The Armed Forces Radiobiology Research Institute (AFRRI) course materials were used as a guide to frame the RDD case study. CDHAM expects to launch the program in early 2006.

(Appendix C, *Department of Military and Emergency Medicine* (MEM), provides additional information on the Center Director, ***Kevin Yeskey, M.D., Associate Professor, MEM.***)

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USU School of Medicine Department of Surgery and the Center for Prostate Disease Research - A TriService Effort.

Researchers led by Dr. Shiv Srivastava from the Center for Prostate Disease Research (CPDR), Uniformed Services University of the Health Sciences (USU), report the groundbreaking discovery of the ETS-Related Gene (ERG) as one of the frequent proto-oncogene overexpressions in prostate cancer cells. This discovery provides a very promising addition to a select group of genes, whose expression is frequently altered in prostate cancer cells and could provide novel molecular targets for diagnosis, prognosis or therapy of prostate cancer in the future...

This discovery was the result of a highly coordinated effort by urologists, pathologists, and cancer biologists from Walter Reed Army Medical Center (WRAMC), USU, the Armed Forces Institute of Pathology (AFIP), the Walter Reed Institute of Research (WRAIR), and the National Human Genome Research Institute (NHGRI).

- *Promising Lead in Prostate Cancer Diagnosis, New Discovery*, Medical News Today, June 11, 2005.

Background. The Center for Prostate Disease Research (CPDR) is a United States Department of Defense multi-site Program with major sites in Washington, D.C., and Bethesda and Rockville, Maryland. The CPDR is dynamic in that it integrates basic and clinical science programs and continues to make significant progress in developing promising detection techniques and treatments for prostate cancer and disease. The CPDR was established in 1991, by the United States Congress in an effort to combat the increasing rate of occurrence of prostate cancer.

The CPDR is a USU program; it is affiliated with the Walter Reed Army Medical Center (WRAMC) and the Armed Forces Institute of Pathology (AFIP), both located in Washington, D.C., as well as nine, TriService (Army, Navy and Air Force) Military Medical Centers located throughout the United States. The CPDR is administered by the Henry M. Jackson Foundation for the Advancement of Military Medicine.

Mission. The CPDR integrates a multi-disciplinary approach to prostate cancer and continues to make great strides in ***clinical and basic science research for improving the diagnosis, treatment and management of prostate cancer patients***. The Center's strategy is to focus investigators on potential breakthrough research leading to translational, cutting-edge technologies within the three major research programs (*Basic Science, Clinical, and Database*) while maintaining the core support requirements for all of its programs. **Colonel David G. McLeod, MC, USA, Urologic Oncologist, Walter Reed Army Medical Center (WRAMC), Professor, USU SOM Department of Surgery**, continues to serve as the Director of the Center for Prostate Disease Research; Colonel McLeod, following a national search, fills the endowed Clinical Chair position.

Center Activities During The Past Year.

Clinical Research Center. The CPDR Clinical Research Center (CRC), located on Ward 56 at the Walter Reed Army Medical Center in Washington, D.C., provides state-of-the-art care to military beneficiary patients affected by prostate disease, with particular emphasis on enrolling military beneficiaries in clinical trials. The CPDR combines prostate screening, data collection, clinical diagnosis, education and counseling in a distinctly patient-oriented setting.

The CPDR Clinical Research Center at WRAMC has made great progress in improving clinical trial opportunities for military health care beneficiaries and expanding the core CPDR database, tissue bank, and serum bank protocols. Under the direction of Colonel David McLeod, the CPDR Director, are six clinical research nurses, a nurse practitioner and physician assistant, a patient educator, two research coordinators, two data managers and five administrative professionals, including a regulatory affairs specialist. To avoid over-burdening WRAMC's existing Anatomic Pathology Department, the Clinical Research Center also employs a histotechnician, located within the WRAMC Anatomic Pathology Department, who assists with the many on-going clinical trials and tissue studies at the CPDR.

The CRC rendered medical and clinical trial services to 4,637 patients in 10,311 appointments and consultations, during 2004; this represents an increase over the 9,567 appointments and consultations on 4,019 patients, which took place during 2003. After establishing a multi-disciplinary clinic for newly diagnosed patients and their families, in October of 2003, the clinic was refined, during 2004, to best meet the needs of the patients and to gather valuable data for research that will ultimately improve clinical care and contribute to improved diagnostics and therapeutics. ***Service participation includes specialists and residents from Urologic Oncology, Radiation Therapy, Psychology, Patient Education, as well as research staff to ensure that all treatment options available to the patient are carefully explained***. After the patients have met with all of the specialists, the group meets to discuss the individual cases presented and offers recommendations to the patients to assist them in their treatment decisions.

The weekly clinics have seen more than 450 patients (and their families), improving the continuity of care for the patients who utilize this one-stop shopping concept for care. In addition to providing a valuable service to DoD beneficiaries, the opportunity to collect more widely comprehensive data on their care and to expand the database in the areas of medical oncology and radiation therapy was realized.

The WRAMC Clinical Research Center currently has over twenty clinical trails, which offer a number of very innovative clinical protocols not offered anywhere else in the Military Health System. A comprehensive CPDR tissue bank and serum bank have been developed from patients treated for prostate cancer and other prostatic diseases at the WRAMC Center.

Basic Science Research Program. The CPDR Basic Science Research Program (BSRP), located at sites in Bethesda and Rockville, Maryland, continues to focus on cutting edge molecular and cell biology research, with a goal to better understand the biology of the disease and to develop novel diagnostic and prognostic biomarkers and targeted therapeutic strategies for the treatment of prostate cancer. The CPDR-BSRP is led by **Shiv Srivastava, Ph.D., CPDR Co-Director and Scientific Director, Professor, USU SOM Department of Surgery,** who, following a national search, fills the Judd Moul Molecular Surgeon Basic Science Chair, an endowed chair position. A dedicated group of basic science cancer researchers including an Associate Director, one Assistant Director, two Senior Staff Scientists, four Staff Scientists, ten Post-Doctoral Fellows, two Laboratory Managers, five Research Assistants, and a Grants Coordinator

support the CPDR-BSRP endeavor. The multi-disciplinary focus of the CPDR ensures integration of the CPDR-BSRP researchers with Urologists, GU-Pathologists, Epidemiologists, Biostatisticians, Medical Technologists, and experts in the areas of Bio- and Medical Informatics and Regulatory Affairs.

In 2004, the CPDR-BSRP continued to produce peer-reviewed high quality papers in leading cancer research journals, including ***Oncogene***, ***Clinical Cancer Research***, the ***International Journal of Oncology***, ***Anti-Cancer Research***, ***Clinical Chemistry***, and the ***Journal of Urology***. The new research findings from the CPDR-BSRP were also presented at national and international scientific meetings (i.e., the *American Urology Association - 2004*; the *American Association for Cancer Research - 2004*; *AACR-Prostate Cancer - 2004*; *Key Stone Androgen Action - 2004*; *Key Stone RNA - 2005*; *SBUR-Fall 2004*; and, *SUO - 2004*. In 2004, the ***CPDR-BSRP was awarded three peer-reviewed grants (NIH-RO1, NIH-UO1 subcontract, and DoD-PCRP Resource Development)***. And, ***one United States patent was issued for the CPDR discovery of the novel prostate specific gene, PCGEM1, and its potential prostate cancer biomarker***. The CPDR-BSRP has also actively contributed to the training and education of Post-Doctoral Fellows, Urology Residents, Medical and Graduate Students, and Summer Students from High Schools and Colleges.

The CPDR is actively participating in the training and education of the Post-Doctoral Fellows and Urology Residents. Currently, ten Post-Doctoral Fellows and two Urology Residents are in training in multi-disciplinary prostate cancer research at the CPDR. The same number is projected for 2005. CPDR also continues to sponsor one Ph.D. Graduate Student, two MHS Residents, three International Fellows, and six Summer Students.

CPDR-TriService Clinical Database. In 2004, significant improvements were made to CPDR's TriService clinical database. The revised Master Protocol was approved by USU on October 12, 2004. Subsequently, each participating military center has undergone the Institutional Review Board (IRB) process for approval. ***The 19,000+ patient database is the largest and most comprehensive longitudinal prostate cancer database in the United States***.

The overarching goals of the Master Protocol revision and database reorganization were to enhance compliance with The Health Insurance Portability and Accountability Act (HIPPA) regulations and to circumvent previous challenges to proper patient consent and data sharing across participating clinical sites. As a key modification to previous standard practice, data will no longer be sent as raw data files to investigators; instead, only final analyses will be sent in a collapsed, tabulated form. As recommended by the CPDR Scientific Advisory Committee, in its 2004 Site Visit Report, CPDR hired an epidemiologist with a strong statistical background to assist in its research activities. The epidemiologist's primary roles will include providing guidance on study design and methodology, enhancing data quality, enabling translational research such as molecular epidemiology, and monitoring adherence to the new Master Protocol. Overall, the major restructuring to the clinical database and Master Protocol have set the stage for dramatic improvement to the data quality, security, and usability of the clinical database. As a remaining goal, linkage of clinical data to tissue and serum bio-specimen data will be required to effectively carry out translational research.

The Center Makes Significant Scholarly Contributions. During 2004, the CPDR made tremendous progress and contributions to prostate cancer research. CPDR researchers published 26 articles in leading prostate cancer and cancer journals. And, CPDR researchers made 27 presentations at national and international prostate cancer meetings.

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The United States Military Cancer Institute.

Background/Organization. The United States Military Cancer Institute (USMCI) is a component of USU; the Director of the Institute reports directly to the President of the University. In addition to the USU SOM, other components of the USMCI are the Walter Reed Army Medical Center, the National Naval Medical Center, the Malcolm Grow Air Force Medical Center, the Armed Forces Institute of Pathology, and the Armed Forces Radiobiology Research Institute. The Institute has, as its objective, the enhancement of multi-disciplinary cancer research under the USU aegis; the ultimate goals are to advance the science of cancer prevention, diagnosis, treatment, and research. **John F. Potter, M.D., former Director of the Lombardi Cancer Center at Georgetown University, and Professor of Surgery at USU,** serves as the Director of the USMCI. Doctor Potter is also a Department of Defense (DoD) Representative to the C-Change, an entity that brings together leaders in the National Cancer Community from academia, government, and industry; he also serves as the DoD Alternate Ex-Officio Member of the National Cancer Advisory Board of the National Cancer Institute.

Mission. The mission of the United States Military Cancer Institute is to promote collaborations among DoD basic and clinical scientists to augment cancer-related patient care and research activities. In a recent year, 355,000 DoD beneficiaries were undergoing treatment or follow-up for cancer. Basic scientists at USU are contributing significantly to translational cancer research with clinicians at the local military hospitals.

Benefits of the Cancer Institute. Cancer remains a very significant issue for the DoD in both human and economic terms. Annual costs for cancer care in the Military Health System (MHS) are estimated at $1 billion, of which TRICARE pays $550 million.

There are a number of benefits that flow from the establishment of the USMCI. The USMCI enhances the academic prestige of USU and positions the University among the premier universities having cancer centers. Medical and nursing students benefit from their involvement in multi-disciplinary patient care, which is the hallmark of state-of-the-art cancer treatment. The Institute enhances the collaborative relationships among cancer scientists in both the basic and clinical areas. The increased public awareness of the high quality of care provided to cancer patients in military treatment facilities should also increase the flow of patients to the military treatment centers. Post-graduate education must also have large numbers of patients for teaching purposes; this level is being threatened in some hospitals. The USMCI will increase patient accessions to the military treatment facilities. Moreover, these cancer patients present extremely challenging surgical and medical conditions. Caring for such patients maintains and enhances the skills of staff physicians, residents, medical students, and nurses. A cancer institute will stimulate the submission of grant applications to the National Institute of Health and other such prestigious entities. An increase in grant awards would be a clear indication of the high quality of research being conducted at the University. The Institute could also serve as a model for TriService collaboration.

The United States Military Cancer Institute has been accepted as a member of the Association of American Cancer Institutes. This Association, to which all of the leading cancer centers in this country belong, has established rigid guidelines for admission. These include the performance of high quality basic, translational, and clinical research. The Association reviewed the extensive documentation, which it requires, describing the USMCI research

programs before voting for acceptance. This recognition is a tribute to the quality of USMCI research and patient care activities.

- *Uniformed Services University Military Cancer Institute Recognized*, The Weekly Activities Report, Health Affairs, Office of the Secretary of Defense, September 3-7, 2002.

Achievements of the Institute. Since its inception, the Institute has accepted over 100 candidates as members. These basic and clinical scientists have formed TriService, multi-disciplinary research teams and programs. For example, the USMCI member programs now include the Center for Prostate Disease Research, the Clinical Breast Care Project, and the Cancer Vaccine Development Laboratory. A Scientific Advisory Board, composed of nationally distinguished cancer scientists, meets annually to review the progress of the Institute. At its most recent meeting, the Advisory Board declared that it was impressed with the progress of the Institute and expressed renewed support for the focus of the Institute on cancer prevention and control. This theme was adopted because it capitalizes on the talents of the basic scientists of the USU SOM to conduct translational research with clinicians in the local military hospitals. Also, the wellness concept is important for DoD's strategic goal on medical readiness. To achieve these goals, a nationally prominent epidemiologist has been recruited as the Associate Director for Epidemiology. Recently, a Memorandum of Understanding was signed with the National Cancer Institute (NCI) to conduct epidemiological studies on military beneficiaries; the NCI is funding this effort in the amount of $250,000. The ***BioSpecimen Network***, a tissue bank, has also been established to procure cancer specimens for molecular analyses by DoD researchers and their colleagues.

Services Sign Memorandum to Combine Efforts in Cancer Research. The Commanders of four local military health care facilities signed a Memorandum of Understanding, in February of 2002, to create the first TriService Institutional Review Board for the United States Military Cancer Institute. In the past, the necessity for an investigator to obtain Institutional Review Board (IRB) approval from each institution at which the investigator wished to perform research (which often amounted to the completion of approval processes with four or five entities) served as a substantial roadblock to collaborative research. However, the signing of an agreement by the Commanders from the Walter Reed Army Medical Center, the National Naval Medical Center, the Malcolm Grow Medical Center, and the President of USU enables researchers to obtain the required reviews of their research protocols through a more streamlined process. Instead of being required to submit a protocol to the IRB sponsored by each individual institution, a researcher can now make one submission to one *integrated* Institutional Review Board. This will facilitate the work of the investigators and expedite cutting-edge discoveries and technology for the DoD communities.

Establishment of the USMCI Committee. A USMCI Committee has been established to support and advise the United States Military Cancer Institute. **The Honorable Frank Carlucci, former Secretary of Defense and National Security Advisor to the President of the United States,** serves as the Committee Chair. Other members include **The First Lady of the United States, Mrs. Laura Bush; Ms. Ellen Stoval, President and CEO of the National Coalition for Cancer Survivorship; Mrs. Marlene Malek, President of Friends of Cancer Research; Doctor Jeong Kim, Chairman of CIBERNET Corporation; General H. Norman Schwarzkopf, USA, Retired;** and, **Mr. Gerald S.J. Cassidy, President of Cassidy and Associates.**

Congressional Recognition. The Congress of the United States has both recognized the United States Military Cancer Institute and mandated substantial funding for its operations during Fiscal Years 2002 through 2006.

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The USU SOM Departments of Medical and Clinical Psychology *and* Family Medicine and the USU Center for Health Disparities Research and Education - *Project EXPORT*.

Background. Despite overall improvements in health in the United States, there continues to be substantial health disparities within ethnic/racial minority (i.e., African-Americans, Hispanics, Native Americans, Asians) and other underserved populations. These disparities are believed to be the result of a complex interaction of many variables, such as biological factors, the environment, patients' health-related behaviors, and inadequate provider training. Greater efforts are needed to develop effective and efficient methods to reduce and ultimately eliminate these disparities. The Liaison Committee on Medical Education (LCME) has also stated that medical faculty and students need to address gender and cultural biases in the delivery of health care and, in general, prepare providers to care for diverse patient populations. Under the direction of **Richard Tanenbaum, Ph.D., SOM Department of Medical and Clinical Psychology,** and **Evelyn L. Lewis, M.D., MA (CDR, MC, USN, Retired), SOM Department of Family Medicine,** USU has developed a biopsychosocial training program for medical students and residents, nursing students, clinical/medical psychology graduate students, and other prospective health care professionals, faculty, and staff. Serving as a partial, but significant infrastructure for the USU SOM Center for Health Disparities Research and Education (USU/CHD), the USU SOM Center for the Enhancement of Healthcare Training and Outcomes (CEHTO) enables the University to comply with the LCME requirements and improves USU's curricula by providing training to optimize patient adherence and enhance health care outcomes. Specifically, CEHTO was established to: 1) infuse concepts and processes into existing curricula in order to advance a biopsychosocial philosophy and improve cultural proficiency; 2) provide a forum in which students have the opportunity to practice the skills and strategies addressed in the classroom; 3) facilitate the development of culturally respectful relationships, inside and outside of the USU community; and, 4) evaluate the impact of this initiative and continuously improve and refine the training provided. Fundamentally, CEHTO is designed to teach current and future health care professionals how to increase their effectiveness. Its ultimate aim is to train providers to use a wide knowledge base, interpersonal and communication skills, and cultural awareness to effect the most beneficial treatment for patients from diverse backgrounds.

During 2003, the University and the SOM Departments of Medical and Clinical Psychology and Family Medicine applied for, and successfully received, a substantial grant from the National Center for Minority Health and Health Disparities (NCMHD), National Institutes of Health (NIH) to sponsor the USU Center for Health Disparities Research and Education, referred to as ***Project EXPORT***. **Evelyn L. Lewis, M.D., MA, USU SOM Department of Family Medicine,** served as the initial Principal Investigator on the NCMHD/NIH grant; upon her departure, **Richard Tanenbaum, Ph.D., USU SOM Department of Medical and Clinical Psychology,** was designated as the Principal Investigator. **David S. Krantz, Ph.D., Professor and Chair, USU SOM Department of Medical and Clinical Psychology,** is the Center Director; and, **Lori Dickerson-Odoms** is the Program Manager. As part of *Project EXPORT*, CEHTO assists in meeting the following objective: to develop workshops and other educational forums that focus on disseminating critical knowledge about health disparities and teaching practical skills in order to maximize culturally proficient health care service delivery.

Mission. The USU Center for Health Disparities Research and Education (CHD) aims to improve the quality of health care services provided to specific patient populations. The CHD is funded by the National Center for Minority Health and Health Disparities (NCMHD)/the National Institutes of Health (NIH) and administered by the Henry M. Jackson Foundation for the Advancement of Military Medicine. In partnership with the University of Maryland-Eastern Shore and community-based organizations, the

Center's goal is to promote positive health-related change and ultimately eliminate health disparities among racial and ethnic minorities through research, education, training, community outreach, and information dissemination.

Center Components and Activities. This was an exciting and productive year for the USU Center for Health Disparities and Research (CHD). Although many of CHD's activities were related to *start-up* processes, and the CHD staff was required to manage *challenges*, especially in regard to personnel and space issues, the CHD Administrative, Research, Education, Training, Community Outreach/Information Dissemination and Shared Resources Cores worked collaboratively and collectively to move toward accomplishing stated goals and objectives, directly linked to its mission statement.

Research Component. The Center's aim is to implement culturally relevant prevention and intervention activities that will improve health in underserved populations. The research core, currently composed of four projects, is intended both to refine scientifically valid intervention methods and to strengthen the participation of affected communities. Studies are designed to be culturally appropriate in terms of ethnic, social, economic, and cultural conditions that influence health status. The long-range goal of this program is to improve the knowledge and health behavior of underserved community members regarding prevention, detection, and treatment of cardiovascular-related risk factors and health conditions; and, to emphasize and develop cultural proficiency among health care providers. Of the four on-going studies, three are conducted in the community. Two of the community studies are treatment outcome studies; one is a community needs assessment. The fourth project focuses on evaluating cultural competency training delivered to third-year medical students.

This community-based prevention/intervention research seeks to expand the knowledge and understanding of the potential causes and remedies of cardiovascular risk factors. The CHD obesity-focused projects build on a programmatic theme of providing and studying obesity treatment in church settings. Obesity and overweight are well-accepted cardiovascular risk factors. African American and Hispanic women are more likely than their Caucasian and male counterparts to be overweight or obese, and they suffer from many chronic diseases associated with these conditions. At the same time, there have been very few controlled investigations of the efficacy or effectiveness of typical weight management techniques among ethnic minority populations. The CHD has extended its existing collaborations with predominately African American churches in the Washington, D.C. Metropolitan Area to include the Montgomery County, Maryland Department of Health and Human Services (DHHS) and the GOSPEL Program, an organization of churches centered on improving the health of its members. These community-research partnerships benefit both the health researchers and the community.

Lastly, the Institute of Medicine Report, *Unequal Treatment* (2003), documents the need for increasing cultural sensitivity and proficiency among the Nation's health care providers. Medical school curricula now require this type of training and new programs are being implemented. There is a need to document the efficacy of such training programs and to provide a means to revise curricula as the result of careful evaluation. The fourth CHD project is designed to meet this need.

- Current Projects.

Project 1: Obesity Treatment and Prevention among African Americans: Utilizing Networks Outside Traditional Settings to Eliminate Health Disparities. Funded by the National Institutes of Health, under the direction of **Tracy Sbrocco, Ph.D., Associate Professor, USU SOM Department of Medical and Clinical Psychology,** the Obesity Treatment and Prevention among African-Americans (Project 1) is a research project that focuses on health behaviors in general, and upon diet and weight management in particular. A core element of the project is the delivery of evidence-based weight loss instruction (Behavior Choice Therapy, BCT) to African American women from the National Capital Area. The goal of this research is to promote long-term behavior change in the treatment of overweight and obesity and to prevent health problems and disease.

Project 2: F.I.S.H. (Family Intervention Study of Health): Family-Oriented Obesity Treatment Program for African American Women. The F.I.S.H. study, funded by CHD (Project 2) is under the auspices of **Tracy Sbrocco, Ph.D., Associate Professor, USU SOM Department of Medical and Clinical Psychology**. This is a weight management study (an extension of the existing Behavior Choice Treatment Weight Management Program at USU) targeting overweight and obese African American women in a church-based setting. The objective of this study is to examine the impact of involving families in the treatment and the long-term weight maintenance of the women, and the prevention of overweight and obesity among the women's family members.

Project 3: G.O.S.P.E.L. (Glorifying our Spiritual and Physical Existence for Life): Health Assessment/Survey for Church Groups. *G.O.S.P.E.L.* is a community-based health education program, which serves a collection of 11 African American churches in Montgomery County, Maryland. The *G.O.S.P.E.L.* Program is funded by the African American Health Program (AAHP) of the Montgomery County Department of Health and Human Services. Staff members from both the Research and Community Outreach/Information Dissemination cores of the USU CHD have worked in active collaboration with DHHS personnel and *G.O.S.P.E.L.* program outreach workers to design and implement a written questionnaire survey to assess the initial impact of the *G.O.S.P.E.L.* Program. The *G.O.S.P.E.L. CARES* needs assessment project was designed to identify congregants' health concerns and interests, as well as their familiarity with the first year of *G.O.S.P.E.L.* program initiatives. Preliminary results of the survey suggest that *G.O.S.P.E.L.* is a well-utilized, accessible program and an important opportunity for providing community-based health education to African Americans.

Project 4: Cultural Proficiency Training. Occurring under the auspices of the Research Core of the Center, the major aims of this study are to evaluate the efficacy of cultural proficiency training delivered to third-year medical students. It is expected that a workshop, delivered by the USU CHD Education Core Staff, will increase medical students' cultural sensitivity and proficiency. During year one, data from 140 third-year medical students have been analyzed; and, a paper detailing the benefits of such training has been submitted. Data collection for third-year medical students is on-going and the Center expects to collect responses from approximately 140 students over the next year.

Minority and Underserved Population Health and Health Disparity Education Component. The Education Component was very productive and successful in meeting its outlined objectives. The Family

Medicine Clerkship Cultural Sensitivity Training at USU, CHD's core educational offering and the forum for Research Project 4 data collection activities, continues on a regular basis. In addition, CHD staff have provided additional cultural sensitivity training for eight of the twelve Family Medicine Clerkship rotation sites at the various Army, Navy and Air Force activities where USU medical students carry out their actual clerkships.

A primary focus of this year's efforts has involved revising the Family Medicine Clerkship Cultural Sensitivity Program to incorporate other didactic and experiential modules that accomplish CHD's major objective - *to increase the cultural sensitivity/proficiency of medical students by increasing their knowledge about cultural differences and providing a safe environment in which to examine their own attitudes and beliefs about patients whose backgrounds are different than their own*. For example, as an extension of the Family Medicine Clerkship Cultural Sensitivity training that the medical students receive at the University, additional educational materials have been made available to the Family Medicine Clerkship sites around the country (i.e., selected readings, an instructional video/CD ROM on *Cultural Care for Diverse Populations*). Students are required to familiarize themselves with this information and they are evaluated in this regard at the end of their Family Medicine Clerkship rotations. A shorter version of this workshop is also provided for the clerkship site directors when they attend their annual meeting at USU. Similar workshops have been provided for the USU Medical & Clinical Psychology students and for Psychology Interns and Psychiatry Residents at the National Naval Medical Center. In addition, CHD is exporting this offering to the community; CHD recently presented a workshop at the Men's Health Summit, part of the African American Health Coalition, in Washington, D.C.

Establishing the *Better Health Players*, a group of six improvisational actors is another major education-related Year 1 accomplishment. *Better Health Players* is an upbeat, energetic theater group that helps people to share personal stories about visits to the doctor - stories that can help people to understand the special ways in which individuals relate to their health care providers. In the community setting, an individual tells his or her story about a visit with the doctor. The *Better Health Players* ***Conductor*** guides the individual through the storytelling process, and the individual chooses performers to play the significant characters in the story. Once told, the story is immediately recreated with artistic form and coherence by the theater ensemble. Finally, audience members are given information about ***Tips for Empowering Patients***, and a discussion follows on how to maximize the effectiveness of visits to the doctor. To date, the *Better Health Players* have performed at the Boys and Girls Club of Greater Washington.

Community Outreach and Information Dissemination Component. The objective of this component of *Project EXPORT* is to actively involve community partners in research, training opportunities, and educational offerings to maximize the understanding and reduction of health disparities in minority and underserved populations. Through multiple activities, the Community Outreach and Information Dissemination Component extracts, synthesizes and compiles relevant material and information from the other primary components of *Project EXPORT*, and translates the resulting data into user-friendly materials for dissemination. The objectives include providing health promotion related materials and information about available health care services to minority and underserved populations most vulnerable to disparate health care treatment. In addition, the necessary infrastructure to carry out research is provided to the appropriate communities; and, opportunities to participate in research studies to elicit data about health care disparities are publicized.

As discussed above, the Community Outreach and Information Dissemination Component is a significant part in the cohesiveness of CHD and can be seen as a central element relative to the other components, specifically Research, Education, and Training; thus activities from this component are integral and in direct support of the other components.

Activities under the Community Outreach Component include meeting, in early March, with the Community Health Awareness & Monitoring Program (CHAMP), one of CHD's original community partners. During this initial meeting, an immediate need was determined that required CHD's assistance with the recruitment of volunteers for CHAMP's Annual Health Freedom Walk held on April 23, 2005. CHD also discussed CHAMP's requirement for assistance with data collection and analysis. Additionally, in April of 2005, CHD was invited to attend the Federation Task Force on Disparities in Healthcare meeting co-sponsored by the American Medical Association and the National Medical Association in Chicago, Illinois, where discussions among medical and public health professionals continued on the subject matter of disparities among racial and ethnic minorities in the United States. Also, during 2005, CHD will feature the *Better Health Players* during its sponsorship of an interactive workshop for USU faculty, students, and staff in recognition of Minority Health Month; the presentation is entitled, *Improving the Patient/Provider Encounter*.

The Latin American Youth Center (LAYC), another Center partner, and CHD crafted a Memorandum of Understanding regarding CHD's current role with the LAYC and the expectations of both organizations. As planned, CHD has assisted in funding two LAYC programs: the Teen Health Promoter Program (THP); and, the Health Professionals of Tomorrow (HPOT) Program. The high school students who participate in these programs will also visit USU to tour the campus, learn about medical school, and talk with Medical and Clinical Psychology Graduate Students about careers in the health care field. CHD is continuing to build its partnership with LAYC, especially through the expansion of CHD's role and participation in the Teen Health Promoter Program and collaboration on other related projects.

During the months of April and May, 2005, the Community Outreach and Information Dissemination Component arranged a series of health presentations by several local organizations for the Teen Health Promoters of LAYC. The topics included nutrition, diabetes, and drug use. The participants included the University of Maryland, Suburban Hospital, and USU staff. In addition, on April 21, 2005, the *Better Health Players* conducted a presentation for the LAYC on ***Improving the Provider/Patient Encounter***. The Community Outreach Component has aggressively continued to expand the Center's reputation and role in the community. As a result, this Component has actively initiated the development of relationships with several local public health, educational, medical, and community organizations and institutions in the Washington/Baltimore area. Through its interaction with the Metropolitan Washington Public Health Association (MWPHA) and its *Health Disparities* Committee, the Center presented a health seminar on March 10, 2005, on Health Disparities at the Takoma Park Community Library, in Washington, D.C., in a predominately African American neighborhood. Future presentations in coordination with the MWPHA are being planned.

On April 11, 2005, the Outreach Component offered a similar presentation on *Health Disparities* to the Latino Outreach Component of the Community Ministries of Rockville, Maryland. The main target audience for this presentation was the *Promotaras de Salud* (Health Promoters) who work in Montgomery County with underserved Latinos. This presentation emphasized teaching the promoters how to maximize the physician's encounter as a tool in helping to reduce health disparities; it was offered in Spanish by a Spanish-speaking Coordinator from CHD's Community Outreach and Information Dissemination Component. Other CHD partners for anticipated collaboration include: The Latino Health Initiative of Montgomery County; The Spanish Catholic Center (Washington, D.C. and Langley Park); Share Health Project, Maryland University (Outreach Component); UDC/State Education Agency, Adult Education (SEA); Mary's Center, La Clinica del Pueblo; Unity Upper Cardozo Health Center; the Washington, D.C. Public Library System; Casa of Maryland; and, Bread for the City, Project of Intermediate Advocates, George Washington University. In addition, the Outreach Component has worked with other community partnerships in the area; it participated with HIPS, a community partnership for health literacy and health

education at the *NBC4 Health and Fitness Expo* on January 31, 2005. And, the Outreach Component contacted DC Learns as a possible partner for disseminating health disparities fact sheets in the Washington, D.C. area.

With respect to Dr. Sbrocco's extensive experience within African-American church congregations in the Metropolitan Area, the Center established a partnership with the Montgomery County Department of Health and Human Services (DHHS), the Black Minister's Conference, the African-American Health Program and its existing *G.O.S.P.E.L.* Program, an organization of African-American churches in Montgomery County, Maryland, to address a shared interest in eliminating health disparities among minorities. The CHD developed the *G.O.S.P.E.L.* cares questionnaire, in collaboration with DHHS of Maryland and *G.O.S.P.E.L.*, to determine health education needs, health care access, and utilization pertaining to behavioral risk factors for cardiovascular disease and diabetes, diseases for which there are substantial health disparities affecting African-Americans. After the *G.O.S.P.E.L.* Cares questionnaire was designed, CHD staff wrote and later submitted an Institutional Review Board proposal, which was approved in May of 2005. CHD conducted research training for those administering the questionnaires to the various congregations. First round administration has ended, and all collected data is being analyzed and summarized for use by *G.O.S.P.E.L.* and its respective congregations.

The Training Component. The objective of the Training Component is to provide exceptional training opportunities in biomedical research and the clinical sciences for students and junior faculty throughout the span of their academic development. The Training Component provides learning opportunities primarily at the undergraduate level. More specifically, CHD summer programs make research opportunities available to college students who are members of minority and underserved populations. These learning opportunities focus on research in the biomedical and behavioral sciences. Students are assigned faculty mentors to make their learning experiences as successful and productive as possible.

CHD has succeeded in meeting its primary Year 1 objective to provide a ten-week, fully-funded, summer research internship program at USU for minority students interested in the biomedical sciences or health care fields. Following a review of applications, eleven students accepted offers to the program for the Summer of 2004. The interns started on June 7, 2004, and completed the program on August 12, 2004; each student participant was paired, based on academic interests, with a scientist or physician mentor. CHD was able to secure on-campus housing for those students who were not from the local area. Besides convenience, this housing arrangement allowed for positive bonding and a transfer of information and learning from one student to another. Students also attended weekly laboratory meetings so that CHD could monitor their progress, manage any administrative or other concerns, as identified, and remain well informed. In addition, relevant didactic presentations (i.e., *How to Make a Scientific Presentation*, *Cultural Proficiency at Work*, *The M.D./Ph.D. Dilemma*) were offered at each laboratory meeting. CHD also partnered with the Pharmacology Summer Internship Program to combine social events and share didactic offerings with students from both programs. Finally, the combined CHD/Pharmacology Research Day and Award Ceremony, held at the conclusion of the summer intern programs, where students presented their summer research work, was a great success; one student from each internship program was presented with an award for *best presentation*. CHD expects that the 2005 Summer Research Internship Program will proceed as well.

Shared Resource Core: EXPORT Data Network. The objective of the Shared Resource Core is to provide on-going data management and systems support to ensure the effective functioning of *Project EXPORT*. The goal of the Information Technology (IT) Shared Resource Core is to support and facilitate

consistent and high quality research by providing appropriate IT infrastructure to enable data collection, storage, management and analysis, and the generation of reports; this support also includes interaction and information exchange among the Center components and the timely dissemination of information to all participants. Information Technology support is also provided in the areas of training, program evaluation, budget tracking, and other Center requirements.

Regarding primary activities in this Component of CHD, a series of consultations were held with the Directors of Health and Health Disparity Education, Community Outreach and Information Dissemination, Research, and Training Components to discuss their vision for the project and to understand their requirements. During these sessions, the requirements for collecting, storing, securing, analyzing, reporting, publishing, sharing, and managing the various aspects of data were thoroughly reviewed. The result of these discussions was a ***Requirements Document*** that details the requirements for supporting the IT needs of the Health Disparities project. A ***Design Document*** was then developed based on the requirements identified; together, the ***Requirements*** and ***Design Documents*** serve as guidelines for fulfilling the IT needs of the Health Disparities project. The corner stone of the IT Shared Resource Core is the **EDN** (***E****XPORT* ***D****ata* ***N****etwork*), pronounced *Eden*. The technical architecture, framework and deployment model of EDN are detailed in the ***Design Document***. The scope of work involves the design, development, deployment, support, maintenance, and management of EDN.

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The TriService Nursing Research Program - A Joint Program Under the Leadership of the Chief of the Army Nurse Corps, the Director of the Navy Nurse Corps, and the Assistant Surgeon General of the Air Force Nurse Corps.

Background. Congress established the TriService Nursing Research Program (TSNRP) in 1992 and tasked the TSNRP to support research conducted by military nurses (S.R. 107-732). Since TSNRP's inception, the program has evolved through the earnest endeavors of military nurses. The TSNRP was authorized as part of the DoD Health Care Program and established at USU in 1996 (Chapter 104, Title 10, U.S. Code, as amended). The TSNRP is under the leadership of the Chief of the Army Nurse Corps, the Director of the Navy Nurse Corps, and the Assistant Surgeon General of the Air Force Nurse Corps. Through continuing investments of resources and support from the Congress, military nurse investigators have increasingly invested their time and expertise in this program. Military nursing research has begun to yield valuable results as uniformed nurse investigators have initiated efforts to expand the scientific foundation for military nursing. Success of the program is evidenced by the positive outcomes of research studies conducted to improve the health of service members and their beneficiaries.

Since 1992, the TSNRP has funded 266 research studies in basic and applied science and involved more than 600 military nurses as principal and associate investigators, as well as consultants and data collectors. Some of the topics investigated with TSNRP include:

- Deployment Readiness for Service Persons and Dependents;
- Health Practices to Enhance Readiness;
- Evacuation and Transportation of Wounded Warriors;
- Nursing Care in Unique Military Environments;
- Health Care Force Retention;
- Effects of Deployment on Service Members' Health;
- Animal Studies to Develop Treatment for Hemorrhagic Shock and Understand the Effects of Heat Exposure;
- Interventions to Support Recruits;
- Skills Development and Maintenance;
- Military Nursing Histories;
- Health Promotion and Disease Prevention;
- Men and Women's Health Issues;
- Managed Care Environments;
- Case Management;
- Nurse-Run Clinics;
- Telehealth; and,
- Econometrics.

Abstracts for all TSNRP funded studies are available on the TSNRP website at <*http://www.usuhs.mil/tsnrp*>.

Mission. During 2001, the TriService Nursing Research Program re-defined its mission: ***to provide resources for the conduct and use of research to foster excellence in military nursing care***. To achieve its mission, four goals were identified:

1) Increase the military nursing research capacity by providing opportunities for nurses to engage in military nursing research;

2) Expand the breadth and depth of the nursing research portfolio by encouraging and funding programs of research in TSNRP's focused areas of investigation: ***deployment health***; ***developing and sustaining competencies***; ***recruitment and retention of the workforce***; ***clinical resource management***; ***military clinical practice***; and, ***outcomes management***;

3) Develop partnerships for collaborative research among the Services and their components, institutions, disciplines and agencies; and,

4) Build an infrastructure to stimulate and support military nursing research and provide resources to support the exploration of salient military nursing research issues.

The TSNRP's first Director was appointed, in 1997, and charged with the responsibility to coordinate and implement all aspects of the program and to manage the *day-to-day* operations of the TSNRP. Also during 1997, the TSNRP established the Resource Center for Excellence in Military Nursing (the Resource Center) to provide resources for nurse clinicians, nurse researchers, and policy makers in support of military nursing research. Reestablished in 2001, the major goals of the Resource Center include:

- Provide military nurse researchers with a repository of information for use in designing, implementing, and disseminating nursing research;

- Improve the quality and quantity of proposals submitted by military nurse clinicians;

- Facilitate the implementation of research findings into clinical practice; and,

- Promote the timely dissemination of TSNRP-funded research findings.

With a redefined mission, identified goals and strategies, and the Resource Center firmly in place, the TSNRP offers military nurse researchers a full spectrum of services that will improve the ability of military nurses to provide appropriate, high quality health care for the Armed Forces.

Highlights of TSNRP Activities During 2004.

Program Executive Director. The Executive Director of the TSNRP must be an active duty military nurse; the position is rotated among the three Services. The leadership position was passed to the Navy in the Summer of 2003, when **Commander Patricia W. Kelley** became the TSNRP's third Executive

Director. As Executive Director, CDR Kelley coordinates and implements all aspects of the program and manages the *day-to-day* operations of the TSNRP.

Commander Kelley was inducted as a Fellow of the American Academy of Nurse Practitioners at the 19th Annual Conference of the American Academy of Nurse Practitioners, in New Orleans, Louisiana, on June 14, 2004. While attending the conference, Commander Kelley, the Keynote Speaker, presented *Mentoring for Research Success*. Also, she presented her research findings from her TSNRP-funded research project entitled, *Diabetes Case Management: Effects on Glycemic Control*. Commander Kelley was invited to the Sigma Theta Tau Nursing Honor Society's 15th International Nursing Research Congress & Pre-Conference in Dublin, Ireland, where she presented her research project entitled, *Evidence Based Practice: Military Nursing Initiatives*. And, Commander Kelley served on the Scientific Review Committee for the 16th Annual Karen A. Rieder Nursing Research Poster Session held at the 110th Meeting of the Association of Military Surgeons of the United States, in Denver, Colorado.

- New Program Manager. **Mrs. Elizabeth W. Tordella, MS, RN,** brings a comprehensive array of skills and experience to the TSNRP. She is an advanced practice registered nurse and is completing her education for a Ph.D. in Health Policy; she has experience in managing research projects and continuing education programs for health professionals.

General Program Activities.

Outreach. One of the strategies employed to stimulate and support military nursing research is to increase the visibility of opportunities available to military nurses through the TSNRP. During 2004, the TSNRP exhibited and participated at many nursing forums throughout the Nation. These activities included: the Phyllis J. Verhonick Nursing Research Course, in San Antonio, Texas; the Uniformed Nurse Practitioners Association Meeting and the American Academy of Nurse Practitioners 19th Annual Conference in New Orleans, Louisiana; the Sigma Theta Tau Nursing Honor Society's 15th International Nursing Research Congress & Pre-Conference in Dublin, Ireland; the National Congress on the State of the Science in Nursing Research in Washington, D.C.; and, the 110th Meeting of the Association of Military Surgeons of the United States, in Denver, Colorado.

Website. The TSNRP introduced a new and improved web site, <***www.usuhs.mil/tsnrp***>, in 2004. The site provides investigators with current information on opportunities for: dissemination; funding sources; the TSNRP Call for Proposals with applications and guidelines for TSNRP funding; abstracts for currently funded studies; findings from previously funded studies and references and links to related web sites; Resource Center activities; and, password protected areas for the Advisory Council and Scientific Review Panel members. Approximately 10,000 *hits* are logged each year.

Testimony Before the Senate Appropriations Committee, Subcommittee on Defense. During 2004, the **Director of the Navy Nurse Corps, Rear Admiral Nancy J. Lescavage** and the **Assistant Air Force Surgeon General, Nursing Services, and Assistant Air Force Surgeon General, Medical Force Development, Major General Barbara Brannon,** submitted written testimony for the Senate Appropriations Committee, Subcommittee on Defense, noting the value of the TSNRP to military nursing practice.

Rear Admiral Lescavage testified:

We continue to focus on advancing the practice of military specific nursing and its response to requirements of military readiness and deployment. The TriService Nursing Research Program has conducted Grant Management Workshops, which provided invaluable mentorship and training, resulting in an increased number of higher quality grant submissions. Research results are shared collaboratively across the Services and are further disseminated to other facilities. Many of our research grant findings have been presented worldwide in numerous nursing conferences and in at least ten professional publications.

Major General Brannon testified:

Air Force nurse researchers stay on the cutting-edge of advancing the science and practice of nursing. I am proud to say that twenty-one Air Force nurses are actively engaged in TriService Nursing Research Program (TSNRP) funded initiatives.

Air Force researchers are leaders in the Department of Defense and the Nation in operational nursing research. In Fiscal Year 2003, nursing research at Wilford Hall Medical Center continued to focus on the care of the war fighter in military unique and austere environments. A study on the thermal stresses on board military aircraft led to the evaluation of products designed to maintain body temperature in critically injured patients during aeromedical evacuation. This will identify devices that are effective in maintaining temperature control to improve support and survivability of casualties.

The TSNRP-funded *Air Force Combat Casualty Aeromedical Nursing* research study describes the experience of AE crew members in providing combat casualty care to gather information that can be used to improve AE nursing practice. The study also aims to pilot a research instrument to measure characteristics of casualties in different locations and the nursing care required. This study will influence AE combat casualty care and future training.

Another study, *Recruitment Decision Making for Military Nursing Careers*, is being conducted collaboratively by military nurse researchers at Keesler AFB and nursing researchers at the University of South Alabama. The goal of this study is to describe factors that influence nursing students in considering military nursing careers. This study will help identify the characteristics of individuals interested in military service and guide recruiting services in deploying recruiting initiatives.

Resource Center for Excellence in Military Nursing.

TSNRP's Publication Project. Following participation in the 13th Biennial Phyllis J. Verhonick Nursing Research Course, 36 military nurses participated in a one-day ***Publication Workshop***. This is the first phase of TSNRP's ***Publication Project***. Participants gained helpful tips on writing research findings, revising, and publishing from a widely-published nursing research scientist.

2004 Grant Writing Camp. *Grant Camp I* was held from May 24-28 at USU; it provided 18 (6 Army; 5 Navy; 6 Air Force; and, 1 National Guard) military nurse researchers the opportunity to learn about the grant development process through lectures, discussion, and hands-on small group work sessions. Highly experienced faculty from both academia and the military led the workshop and provided one-on-one mentoring for each participant's proposals.

Grant Camp II - Mock Scientific Review was held on August 19-20 at the Naval Air Station, Coronado, California. Participants from Grant Camp I continued to work on their proposals and gained familiarity with the scientific review process used by TSNRP for screening research proposals for scientific merit. The Mock Scientific Review panel, composed of both faculty and Camp participants, reviewed each of the participant's proposals; nine students submitted research proposals in the Fall of 2004.

Regional Research Center Evidence Based Practice Initiatives. Regional nursing research centers were created, during 2001, through the TSNRP Resource Center. These regional nursing research centers, termed *Pods*, are located across the United States and Hawaii and are led by doctorally-prepared military nurse scientists. The objectives of the Research Pods are to: facilitate military nursing research across the Services; provide mentorship to master degree prepared nurse researchers; support programs of nursing research within and across the Services and Military Medical Centers; share research resources; foster collegial support for military nurses interested in conducting research; and, facilitate utilization of research findings in practice.

The Evidence Based Practice (EBP) Improvement Project in the Northeast Pod. The National Naval Medical Center (NNMC) and the Walter Reed Army Medical Center (WRAMC) collaboratively engaged in a multi-phase performance improvement project to facilitate the implementation of three evidence-based nursing practice guidelines at each site. Nurses at NNMC are developing guidelines for pain management, central line care, and neonatal tactile stimulation and thermoregulation. Nurses at WRAMC are developing clinical practice guidelines for pressure ulcer care, enteral feeding, and Deep Vein Thrombosis/Pulmonary Embolism prevention. Intensive EBP training by internationally recognized EBP experts preceded these efforts.

The Military Nursing Outcomes Database (MiLNOD) Project. The MiLNOD project evolved from TSNRP Resource Center seed money into four grants. MilNOD is collecting data to support evidence-based clinical and administrative decision-making and seeks to create a reliable and valid database consisting of standardized nursing staffing and patient safety data. The MilNOD project has influenced the development of the Veteran's Affairs Nursing Outcomes Database (VANOD). The ***Northwest Pod*** sponsored a two-day conference, Analytic Strategies for Nursing Databases, in November of 2004, in Palo Alto, California. It brought together military nurse researchers, consultants, and experts to discuss and provide methodological guidance to the project.

The Southeast Pod Evidence Based Project (EBP) Initiative Project. Outcomes of the ***Southeast Pod***'s EBP Initiative Project included participation of more than 30 nurses at three military bases (Elgin Air Force Base, Keesler Air Force Base, and Pensacola Naval Air Station) in classes that provided information about EBP and provided motivation for the development of EBP guidelines.

The Southwest Pod Project Conducts Workshop for Multi-Disciplinary Teams. An internationally recognized EBP expert conducted a workshop for multi-disciplinary teams at the Brooke Army Medical Center (BAMC) and the Wilford Hall Medical Center (WHMC). Nurses at these medical centers are involved in the ***Southwest Pod***'s project, *Evaluative Process of Applying Evidence to the Delivery of Health Care for Beneficiaries Receiving Ventilator Care*. The workshop highlighted outreach strategies for persuasive and continued engagement with the staff to disseminate proposed implementation plans through both BAMC and WHMC. This project recently started the process for implementing and measuring outcomes of a specified oral care delivery method, hand washing compliance, and head-of-bed elevation compliance.

TSNRP Funding - TSNRP Research Award Categories. TSNRP accepts research proposals for six categories of research in March and November of each year. These categories include: ***Novice Investigator Award -*** awarded to military nurse clinicians with limited research experience and requires a nurse research mentor; ***1, 2, and 3 Year Awards -*** awarded to Active Duty, Reserve, National Guard, and Retired Nurse Corps Officers with research experience; ***Pilot Project Award -*** awarded to provide preliminary data for future research; ***Research Fellow Award -*** to expand the skills of experienced military nurse researchers.

The TSNRP accepts applications for the ***Graduate Research Award*** from October through March of each Fiscal Year. The award supports a dissertation or thesis research project. Applications for the ***Fast Track Award*** are accepted four time each Fiscal Year; the purpose of the award is to facilitate the rapid implementation of short-term research focused on emerging service specific questions or concerns.

Three-Tiered Proposal Review.

Review for Scientific Merit. All proposals submitted to the TSNRP for funding are subject to rigorous peer review, designed to evaluate the scientific merit of the research proposals. The review panel is comprised of nationally renowned nurse scientists, selected from the research community for their expertise, publications, and work experience. Military nurse scientists evaluate the proposals for the feasibility of implementing the research in a military environment.

Review for Programmatic Merit. Following the scientific merit review, the TSNRP Advisory Council (AC), comprised of six doctorally-prepared nurse scientists, who represent both the Active Duty and Reserve Components from each branch of the military Services, provides the programmatic review. Council members evaluate the proposed research as it relates to the TSNRP goals and priorities.

Awarding Grants. Final funding decisions are based on scientific merit and programmatic evaluations. The TSNRP Executive Board of Directors makes the final grant award decisions. The Executive Board of Directors includes the Corps Chiefs for the three Military Nurse Corps or their designated representatives.

Fiscal Year 2004 Awards. Successful researchers endure a highly competitive and rigorous evaluation process. In 2004, TSNRP awarded twenty-two research grants that focus on operational readiness and care of the Active Duty soldier, sailor, airman, and marine during a time of war. The 2004 research awards are listed below.

- ***Army Nurse Corps Awards*:**

- BG Jenenne Nelson: *Experiences & Patterns of Tobacco Cessation*;
- COL Patricia Patrician: *MiLNOD: Analysis and Expansion*;
- COL (ret.) Holly Kennedy: *Motherhood, Stress & Role Strain in Junior Enlisted Women*;
- LTC Deborah Kenny: *Knowledge to Practice: A Study of the Natural Process*;
- LTC Kimberly Smith: *Effects of Resuscitation Training on BLS Skills*;
- LTC Veronica Thurmond: *Aeromedical Evacuation Needs of War Injured Service Members*;
- MAJ Denise Hopkins: *Motherhood, Stress & Role Strain in Junior Enlisted Women*;
- MAJ Beverly Rose: *Outcomes of a Nurse Managed Diabetes Foot Clinic*;
- MAJ Joseph O'Sullivan: *Effect of Diazoxide on Hemorrhagic Shock*;
- MAJ (ret.) Mary McCarthy: *Perioperative Immunonutrition in Head and Neck Cancer*; and,
- CPT John D. Gordon: *Multi-Dose Vial Contaminates*.

- ***Navy Nurse Corps Awards*:**

- CAPT Reg Williams: *FICS for Sailors: Follow-up Intervention Study*;
- CAPT Charles Vacchiano: *Oxidative Stress 7 Pulmonary Injury in United States Navy Divers*;
- CAPT Min Chung Park: *Unintended Pregnancy Prevention and Active Duty Women*;
- CAPT Catherine Cox: *The Retention of Recalled Navy Nurse Reservists Following Operation Iraqi Freedom*;
- CDR Mark Larsen: *The Effect of Heat Exposure in Rat Hypothalamus*;
- LCDR Paul Cornett: *Effects of Volatile Anesthetics on TRPV1 and Surgical Pain*; and,
- LCDR Mary White: *Coping Intervention for Children of Deployed Parents*.

- ***Air Force Nurse Corps Awards*:**

- Col Penny Pierce: *Women Veterans Project: Operation Iraqi Freedom*;
- Col Penny Pierce: *Work, Family, and Stress: Deployment Resilience and Retention*;
- Lt Col (ret.) Elizabeth Bridges: *Wartime Critical Care Air Transport*; and,
- Lt Col Beverly Smith: *Operational Healthcare: Ready to Care for Our Warriors*.

Post Grant Award Activities and Support.

Grant Management Workshop. Since 1998, the TSNRP has provided a three-day grant management workshop for newly funded principal investigators and their project directors. The workshop is designed to provide education on Federal, DoD, and USU regulations and requirements, as well as practical information on managing a research grant. Presentations at the 2004 workshop included didactic sessions, case studies, and small group discussions in areas such as: grant agreement regulations and cost principles; Federal and

local institutional review board (IRB) requirements; research integrity; copyright laws; ethics in research; the investigator's role and responsibilities; assistance visits; reporting requirements; and, budget management. The workshop provides an opportunity for investigators to meet the TSNRP staff and to establish a working relationship. It is also a venue for the investigators to network with other military nurse researchers. The response to the workshop was overwhelmingly positive.

Grant Management. Two full-time registered nurse grant managers provide monitoring and timely assistance for over 70 active research grants and a portfolio totaling 266 studies. Investigators receive assistance from TSNRP grant managers for a myriad of issues, to include: requests for changes in research design and study personnel; additional funding and extensions to the study period; disposition of equipment; monitoring and tracking of regulatory compliance and human subject protection training; and, study progress.

Final Reports. Final Reports are required in the Terms and Conditions set forth for grant awardees. Expert nurse scientists review non-dissertation/thesis Final Reports to ensure scientific completeness.

Dissemination of Research Findings.

Dissemination is imperative for the success of the program and to ensure that military nurse researchers actively contribute to the on-going development of nursing science. The TSNRP publishes abstracts from final reports on its website, <*www.usuhs.mil/tsnrp*>, and research findings from these reports on the National Technical Information System (NTIS) and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) so the public can access TSNRP Researchers' findings.

The TSNRP researchers are actively engaged in presenting their findings at nationally recognized conferences and research competitions. TSNRP-funded study findings are published in peer-reviewed journals including, but not limited to, the *American Journal of Epidemiology*, *Biological Research for Nursing*, the *Journal of the American Psychiatric Nurses Association*, the *Journal of General Internal Medicine*, the *Journal of Nursing Scholarship*, *Journal of Traumatic Stress*, *Military Medicine*, *Neuroscience Research*, and *Nurse Practitioner*.

Awards, Presentations, Publications (selected examples).

The TSNRP supported the ***16th Annual Karen A. Rieder Nursing Research Poster Session*** at the 110th Annual Meeting of the Association of Military Surgeons of the United States. Over eighteen of the program's fifty-six presenters were TSNRP investigators (32%).

Colonel Patricia A. Patrician, AN, USA, received the ***2004 Anita Newcomb McGee Award*** from the Daughters of the American Revolution (DAR) on July 9, 2004. DAR presents this award annually to an active-duty Army Nurse Corps officer who exemplifies excellence in professional and military nursing. Colonel Patrician was the Chief of Nursing Research at the Walter Reed Army Medical Center,

administering $2.5 million in extramural funding, when she was selected for this award. She is the author of eight publications and has four manuscripts in review; she is also the principal investigator on three large studies. Her TSNRP-funded study on medication errors led to a renewed emphasis on developing a culture of non-retribution and improved safety for medication delivery. Currently, Colonel Patrician is the Chief of the Department of Nursing Science at the AMEDD Center and School, in San Antonio, Texas.

Colonel (ret.) Bonnie Jennings, AN, USA, presented findings from her study, ***Care Coordination for Active Duty Soldiers on Profile***, at the National Congress on the State of the Science in Nursing Research, in Washington, D.C., during October of 2004. Colonel Jennings' study sought to create an infrastructure to improve the care coordination for active duty soldiers.

Lieutenant Colonel Deborah Kenny, AN, USA, and **Commander Maggie Richard, NC, USN,** won the ***Phyllis J. Verhonick Nursing Research Award*** for their presentation, *A TriService Integrated Approach to Evidence Based Practice*, at the Phyllis J. Verhonick Research Course, in San Antonio, Texas, during April of 2004.

Lieutenant Colonel (ret.) Elizabeth Bridges, USAF, NC, conducted the TSNRP study, *Cognitive Assessment: Wartime Competencies for the USAF Nurse*. This study used a state-of-the-art human patient simulator, *STAN*, to identify areas for improved clinical readiness preparation. ***An outcome of this study was a validated cognitive test that focuses on operational nursing care. This instrument has been distributed to nursing leaders in Active Duty, Guard, and Reserve Units and is available on-line through the TSNRP and Air Force nursing websites.*** Doctor Bridges presented her findings to over 300 nurses at the Federal Chiefs Symposium at the 110th Meeting of the Association of Military Surgeons of the United States. Participants expressed great excitement about the utility of her results, the availability of the test, and her focus on the development of critical thinking skills. She was asked to distribute her training materials on an Air Force-wide basis.

In September of 2004, Dr. Bridges presented examples from a TSNRP-funded research program conducted at the Wilford Hall Medical Center on ***Care in the Air*** to over 100 nurse scientists from across the United States at the Friends of the National Institutes of Nursing Research (FNINR) Conference. ***This study focused on the provision of military nursing care under field conditions and aeromedical evacuation.***

Commander Jacque Rychnovsky, NC, USN, was awarded 1st Place for Research Findings for the study, ***Postpartum Fatigue in the Active Duty Military Woman***, at the Sigma Theta Tau International Nursing Research Conference, *Nursing Odyssey 2004: Charting a New Course in Nursing*, held in Southern California. Commander Rychnovsky also presented this study at the *16th Annual Karen A. Rieder Nursing Research Poster Session* and for the Federal Service Nursing Research Council at the 110th Meeting of the Association of Military Surgeons of the United States.

Commander Linnea Axman, NC, USN, was awarded 3rd Place for Research Findings for her study, ***Development of the Participatory Action Empowerment Measure***, at the Sigma Theta Tau International Nursing Research Conference, *Nursing Odyssey 2004: Charting a New Course in Nursing*.

Commander Maggie Richard, NC, USN, published an article in the Navy Nurse Corps Newsletter entitled, *Catch the Evidence Based Practice Wave*. This article describes the process she and her team of military and civilian nurses used at the National Naval Medical Center to develop and deploy an evidence-based pain monitoring system.

Lieutenant Commander George A. Zangaro, NC, USN, presented *Meta Analysis of the Reliability and Validity of the Index of Work Satisfaction* findings from his TSNRP-funded study, at the University of Maryland's Annual Research Day, held at the University of Maryland Baltimore County Campus, in April of 2004. LCDR Zangaro won ***First Place in the Nursing Category*** for his work on this study.

Future Direction.

TriService Nursing Research Program. The TriService Nursing Research Program is rapidly outgrowing its research study database. Plans are being made to upgrade to a more powerful and robust system capable of collecting on-line research proposals.

Resource Center for Excellence in Military Nursing. In 2005, the Resource Center will introduce an exciting, redesigned Grant Camp Program. The program will now offer an additional course entitled, *Research Decision-Making for Novice Nurse Researchers*, to address the needs of the more novice researchers. Participants will learn how to develop research ideas and how to develop these ideas into proposals. Successful participants will be invited to Grant Camp I. Grant Camp II will include *Grant Camp I* participants who demonstrate sufficient refinement to their research proposals, during the grant-writing workshop.

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III. OPTIMIZATION

The median length of non-obligated service for physician specialists in the MHS, not including USUHS graduates is 2.9 years; however, the median length of non-obligated service as physician specialists for USUHS graduates is 9 years. The significance of the USUHS physician specialists serving three times longer than the other physician accession sources is critical to medical readiness as well as to cost-effectiveness. As our Armed Forces continue to be deployed into combat zones, USUHS graduates ensure that these superb uniformed personnel are provided with quality care from the initial preventive measures taken to protect their health, to the moment of injury, through their release from hospitalized treatment...

At present, 2,758 USUHS SOM alumni represent 23 percent of the active duty physician force. The 231 USUHS Graduate School of Nursing graduates are passing their certification examinations with outstanding scores and are cost-effectively providing essential skills under deployed conditions. The USUHS Graduate Education Programs in Public Health have been ranked sixth in the Nation for the past two years.

The Military Coalition supports the University in its cost-effective provision of career-oriented uniformed physicians, advanced practice nurses, and scientists dedicated to the provision of continuity and leadership and ensuring medical readiness for the Military Health System.

- **The Military Coalition, Signed by 35 Military Associations,** Letter to the Under Secretary of Defense for Personnel and Readiness, April 13, 2005.

Four USU programs generated over $33.6 million of cost avoidance for the Department of Defense during 2004: 144 USU faculty members provided 147,301 hours of clinical and consultative services at military treatment facilities (MTFs) for a documented cost avoidance of $16,094,907; the USU

Office of Continuing Education for Health Professionals (CHE) sponsored continuing medical education for 969 activities with an attendance of 7,409 physicians; provided continuing nursing education for 88 activities for 2,532 nurses; and, approved 34 programs of Category II (non-ACHE) continuing education credit for 692 members of the American College of Healthcare Executives for a documented cost avoidance of $4,769,942; the USU Military Training Network (MTN) generated a documented total of $11,372,044 in cost avoidance by facilitating DoD's ability to provide essential medical readiness training for over 205,709 defense personnel; and, the USU Graduate Education Programs generated $1,340,000 of cost avoidance when 38 uniformed officers received advanced degrees (34 Masters Degrees and 4 Doctoral Degrees) from the University.

- ***USU Cost Avoidance Fact Sheet*,** May 31, 2004.

USUHS physician specialists remain on active duty for an average of 9 years after they complete their specialty training - about three times longer than physicians trained under the Department of Defense's Health Professions Scholarship Program (HPSP). In fact, since the first graduating USUHS class in 1980 through January 2005, 80 percent of the 3,587 USUHS School of Medicine graduates remain on active duty in the Military Health System, comprising 23 percent of its active duty force. According to the Center for Navy Analysis, it likely would require at least 895 additional HPSP accessions to replace each year's class of 165 USUHS School of Medicine graduates. In a time of widely-held fears of a looming shortage of physicians and health care providers (such as advanced practice nurses), this retention powerhouse is an increasingly valuable resource for the Military Health System and the nation.

- **Michael D. Maves, M.D., MBA, Executive Vice President, CEO, the American Medical Association,** Letter to the Deputy Secretary of Defense, May 6, 2005.

The Uniformed Services Health Professions Revitalization Act of 1972, Public Law 92-426, established USUHS within the Military Health System (MHS) as the one institution where continuity, leadership and medical readiness would be designated as the highest of priorities. In addition to the typical curricula found in School of Medicine (SOM), Graduate School of Nursing (GSN), Graduate Education, or Continuing Health Education Programs, the University is mandated to respond to the special requirements of the MHS by incorporating unique military medical readiness training and expertise throughout its courses, field exercises and programs.

The extraordinary retention rates of the 3,587 USUHS SOM graduates have been independently confirmed. The median length of non-obligated service for physician specialists in the MHS, not including USUHS graduates, is 2.9 years; however, the median length of non-obligated service as physician specialists for USUHS graduates is 9 years. The significance of the USUHS physician specialists serving three times longer than the other physician accession sources is critical to medical readiness as well as to cost-effectiveness. For example, the Veterans Administration has had to spend billions of additional dollars for the services of contracted physician specialists due to 1,000 vacant civilian physician specialist positions. In contrast, the MHS has been able to increasingly rely upon the USUHS SOM alumni for the provision of such essential care.

The 231 USUHS GSN graduates are passing their certification examinations with outstanding scores and are cost-effectively providing essential skills under deployed conditions. The USUHS Graduate

Education Programs in Public Health have been ranked sixth in the Nation for the past two years, with over 300 uniformed officers receiving Masters and Doctoral Degrees in Public Health and Tropical Medicine and Hygiene (at no additional cost to DoD) from USUHS. Independent reports during 2002 and 2003 have documented that USUHS is the most cost-effective of the four major physician accession sources for filling senior physician specialist requirements. In fact, the annual OSD-recognized cost-avoidance generated by USUHS (i.e., patient care, continuing health professional education, and advanced degrees granted to uniformed officers) totaled $33.6 million for the MHS during 2004, which represents 47 percent of the USUHS O&M budget.

- ***United States Senators:*** **The Honorable Paul S. Sarbanes; The Honorable Barbara A. Mikulski;** ***Members of the United States House of Representatives:*** **The Honorable Chris Van Hollen; The Honorable Benjamin L. Cardin; The Honorable Elijah E. Cummings; The Honorable Steny H. Hoyer; The Honorable C.A. Dutch Ruppersberger; The Honorable Albert R. Wynn,** Letter to the Secretary of Defense, April 1, 2005.

III. THE GRADUATE SCHOOL OF NURSING

For military health care providers, "the fight" is different. They must be prepared to care for the sick, save lives, and beat the odds in severe environments. Many people think those odds are diminished severely after an injury on the battlefield. But, with the right preparation in operational readiness, nurses and physicians can make the difference.

- **Nursing Spectrum,** *Caring for Those in Harm's Way*, Volume 13, No. 6DC, March 24, 2003, page 8.

ESTABLISHMENT

Legislative and DoD Direction. The establishing legislation of the University, the Uniformed Services Health Professions Revitalization Act of 1972 (Public Law 92-426), and DoD Directive 5105.45, both direct that USU must meet the requirements of medical readiness and expand to meet the future needs of the Uniformed Services. In accordance with those directives, the Graduate School of Nursing (GSN) was established at USU. During the Fall of 1992, the Department of Defense received the authority, along with an appropriation, to begin planning for the implementation of a nurse practitioner education program at USU. The intent of the legislation was to meet the needs for advanced practice nurses in the Uniformed Services (the Army, Navy, Air Force, and the United States Public Health Service (USPHS). The Federal Nursing Chiefs initially identified the need for advanced practice nurses in two areas: Family Nurse Practitioner and Nurse Anesthesia. In 1993, Congress directed the initiation of a demonstration program for the preparation of family nurse practitioners for the Uniformed Services. By February 26, 1996, the GSN had received official approval and recognition from the Office of the Assistant Secretary of Defense for Health Affairs.

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GSN Meets Legislative and DoD Mandates. In compliance with Congressional legislation and in direct response to the needs of the Federal Nursing Chiefs and the Uniformed Services, the GSN initially established a Master of Science in Nursing Degree Program with two options in Nurse Anesthesia and Family Nurse Practitioner. These two GSN options were implemented to alleviate shortages of health care providers in the Uniformed Services, as identified by the Federal Nursing Chiefs. Graduates receive the Master of Science in Nursing (MSN) Degree and are qualified to test for national certification in their specialties.

The first students were admitted into the GSN Family Nurse Practitioner option in August of 1993; and, the first students matriculated into Nurse Anesthesia in June of 1994. Family Nurse Practitioner has had ten graduating classes from 1995 through April of 2005, for a total of 103 graduates; Nurse Anesthesia has had nine graduating classes beginning with the Class of 1996 through the Class of 2004 for a total of 121 graduates. The GSN Master Completion option has had a total of 7 graduates. Thus, from its first graduation in 1995 through April of 2005, a total of 231 MSN Degrees have been granted by the USU GSN.

GSN graduates have excelled in achieving national certification as advanced practice nurses in their specialties, with a 100 percent, first attempt pass rate from graduates of the Family Nurse Practitioner and Nurse Anesthesia (NA) Options in the MSN Program for the Class of 2004. Of the 103 Family Nurse Practitioner (FNP) graduates, all have passed their certification examination, with 100 doing so on their first attempt; thus, ***the GSN FNP graduates have a 97 percent first attempt pass rate***. To further illustrate the academic excellence of the GSN graduates, twelve of the 17 graduates from the GSN Nurse Anesthesia Program and the Navy Nurse Corps Anesthesia Program, Class of 2004, who took the certification examination for nurse anesthetists scored the maximum possible score of 600; ***the average score of the GSN NA Class of 2004 was 596.2*** (with a standard deviation of 8), well above the national average, which was 551.5 (with a standard deviation of 63).

Today, the GSN is unique among the Nation's nursing programs as it educates students to support the health care mission of the Military Health System (MHS) during peace, war, disaster, and other contingencies. GSN students are prepared to contribute to the peacetime health care delivery systems of the Uniformed Services and to provide unique support during combat operations, civil disasters and humanitarian missions; they are prepared to serve under austere and harsh conditions in field hospitals, on ships, and during air evacuations. For example, GSN alumni continue to support operations in South East Asia and the Persian Gulf. The GSN curricula include an increased focus on leadership; and, rotations with senior health care executives provide opportunities for increasing the students' understanding of health care policy and for networking with uniformed and professional leaders. GSN alumni have published articles, presented at national conferences, completed post-graduate courses, and are enrolled in doctoral studies. Along with the GSN faculty, GSN alumni are recognized leaders within their specialties and actively participate in national and international nursing organizations.

To meet its legislative and DoD directives, the GSN's *internal community of interest* extends throughout the University. It includes the executive staff at USU and the students, faculty, research, and administrative personnel within the GSN and the School of Medicine (SOM). The GSN faculty and students provide meaningful contributions to USU committees and collaborate on projects throughout the GSN and the University. The Federal Nursing Chiefs represent one of the GSN's *external communities of interest*. The Federal Nursing Chiefs, serving as a Board of Advisors to the GSN since 1993, meet at least twice a year to provide and receive information on the GSN's curricula and program effectiveness. Information provided by the Service Chiefs is incorporated into the strategic planning process of the GSN during continuous review and revision of its mission, philosophy, objectives and curricula. (**NOTE:** The Federal Nursing Chiefs include representatives from the Army, Navy, Air Force, Public Health Service, and the Department of Veterans Affairs. The American Red Cross, although not a Federal agency, is an honorary representative on the GSN Nursing Board of Advisors.) The GSN's external communities of interest also include USU alumni, uniformed supervisors of GSN alumni, members of the uniformed and civilian nursing communities, the Departments of Defense and Veterans Affairs, and the United States Congress.

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MISSION

The Accrediting commission pointed out in its summary findings to the University that the mission and philosophy of the USUHS Graduate School of Nursing (GSN) is grounded in the University's mission and in the mission of the Uniformed Services. The GSN Curriculum is designed to be specific to the unique mission of military service nurses: to serve in times of war and peace.

- **The Honorable Daniel K. Inouye, the United States Senate**, Congressional Record, *Tribute to Dr. Faye Glenn Abdellah*, May 15, 2002, pages S4488-S4489.

Mission Direction. The Mission Statement for the GSN is derived from the overall Mission Statement of the University and is in compliance with DoD Directive 5105.45. The ***initial mission*** of the GSN included five major objectives: 1) the GSN is dedicated to providing quality education to prepare advanced practice nurses, at the graduate level, in the specialties of Nurse Practitioner and Nurse Anesthesia; 2) the GSN must produce graduates who are both qualified for, and dedicated to, the delivery of primary care (acute and chronic care), including anesthesia services, to active duty members of the Uniformed Services, their families, and all other eligible beneficiaries during peace, war and other contingencies; 3) the GSN is also directed to provide the Nation with graduate nursing professionals who are willing to commit themselves to a career of service in the Department of Defense and the United States Public Health Service; 4) the GSN must serve the Uniformed Services and the Nation as an innovative, responsive program with a world-wide perspective for leadership, education, research, and service; and, 5) the GSN must develop advanced practice nurses, with unique experience and skills, who can respond to the special requirements of the Uniformed Services for disaster relief, humanitarian intervention, and military readiness.

The mission of the GSN is in full compliance with the goals of the Assistant Secretary of Defense for Health Affairs. The GSN remains dedicated to providing a quality and unique education that prepares nurses to deliver care and services to all beneficiaries of the Uniformed Services during peace, war, and other contingencies. The GSN faculty and staff provide the Nation with graduate nursing professionals dedicated to a career of service for the Department of Defense, the USPHS, and other Federal Health Systems.

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Mission Accomplishment.

The University's academic programs are consistent with its mission. In particular, the Team notes, the professionalism of the programs, the objectives to develop the student's intellectual and leadership skills, which are prerequisites for strong foundations in medicine, nursing, the biomedical sciences and public health services, and the credentials of the faculty.

- **Evaluation Team of the Middle States Commission on Higher Education,** Report to the Faculty, Administration, Trustees, Students of the Uniformed Services University of the Health Sciences, April 2, 2003; accreditation was granted to the University through 2013.

Since 1993, with the strong cooperation and support of the Federal Nursing Chiefs, the GSN has: 1) recruited a qualified faculty; 2) established curricula for the Family Nurse Practitioner, Nurse Anesthesia, and Perioperative Clinical Nurse Specialist options in its MSN Program and a Doctoral Program that leads to the Ph.D. in Nursing Science; 3) identified hundreds of clinical practice sites (the GSN currently has memoranda of understanding (MOUs) with 21 military treatment facilities (MTFs) to include an additional 111 non-DoD, Federal, and civilian clinical sites); 4) developed and implemented an administrative structure that provides for faculty and student participation in the overall governance of the GSN; 5) submitted self-studies and received accreditation for its MSN Degree Program from three professional accrediting entities (status of recent accreditations follows); 6) received approval from Health Affairs, Office of the Secretary of Defense, on February 26, 1996; 7) initiated curricula and governance reviews; 8) collaborated with the Department of Veterans Affairs and utilized state-of-the-art technology to establish distance learning options, which resulted in the DoD's first virtual graduation at the advanced level; and, 9) as of April 2005, granted Masters of Science in Nursing Degrees to 231 advanced practice nurses, with over 80 percent of its graduates remaining on active duty.

The Implementation of two Post-Master Options. In addition to the establishment of its two traditional MSN Program options of Family Nurse Practitioner and Nurse Anesthesia, the GSN also implemented a Post-Master Family Nurse Practitioner option and the Department of Veterans Affairs (VA)/ Department of Defense (DoD) Post-Master Adult Nurse Practitioner (ANP) Distance Learning Program (ANP). The Post-Master Family Nurse Practitioner Certificate option began in 1999, primarily in response to, and in support of, the decision by the Army Nurse Corps to transition from a specialty nurse practitioner to a family nurse practitioner focus. During the transition, the number of students varied, resulting in the awarding of two to four certificates per year; as of April 2005, a total of 15 Post Master Certificates have been granted.

The VA/DoD ANP Certificate Program was initiated in collaboration with the Department of Veterans Affairs (VA). The VA had identified a requirement to increase its number of adult nurse practitioners throughout its health care system, which included approximately 173 Medical Centers and 771 ambulatory care and community-based clinics. The student body was composed of civilian VA employees who maintained their full-time responsibilities at the VA facilities while participating in the program. The curriculum incorporated video teleconferencing technology as the primary teaching tool, with faculty conducting GSN-designed, lecture-based instruction. Students participated from VA medical

centers located across the United States, Puerto Rico, and the United States Virgin Islands; following the third graduation in May of 2003, the GSN had awarded a total of 70 certificates (this program is covered in more detail at the end of this section of the Journal).

The Development of a Clinical Nurse Specialist Option.

Background. The first Clinical Nurse Specialist Program was established in 1954 at Rutgers University; it was designed to prepare nurses at the Master Degree level who would be dedicated to improving patient and family care in the face of significant technologic advances in cardiac and pulmonary surgery. Early Clinical Nurse Specialists were known by a variety of titles, including *nurse clinician*, *clinical associate*, *liaison nurse*, *clinical supervisor*, and *clinical nurse specialist*. By 1970, the core function of the role of the Clinical Nurse Specialist was identified as a graduate-prepared nurse who was able to: 1) assess the nursing needs of patients and develop nursing care plans based on the knowledge of nursing, medical, biological, and social sciences and generally direct the provision of nursing care in the patient unit; 2) consult with others, as needed, and make appropriate use of available administrative and organizational channels in support and maintenance of nursing performance; 3) establish and evaluate standards of clinical nursing practice in a unit; 4) teach patients and nursing staff in a unit how to improve clinical outcomes; and, 5) introduce nursing practice innovations and refine nursing procedures and techniques and investigate specific nursing practice problems.

Today, there are approximately 58,000 clinical nurse specialists in the United States. They provide care in a variety of clinical specialties in both in-patient and out-patient settings. According to the Division of Nursing, National Sample Survey of Registered Nurses, Clinical Nurse Specialists employment breaks down as follows: *50.3 percent - Hospitals* (24.4 percent have no direct patient care and work primarily in staff development and administration; 46.6 percent work as part of in-patient units; 19.1 percent work as part of out-patient units; and, 9.8 percent work in other patient care areas); *19.5 percent - Nursing Education*; *13.4 percent - Community Health*; *9.5 percent - Ambulatory Care*; and, *7.3 percent - Other* (Private Industry, Pharmaceuticals, etc.).

In June of 2001, the Federal Nursing Chiefs identified a need for a Clinical Nurse Specialist (CNS) option in the GSN Master of Science in Nursing Program. A feasibility study and the development of a pilot program were completed and accepted by the Federal Nursing Chiefs. In January of 2002, **Founding Dean Faye Glenn Abdellah** and the GSN Associate Dean presented the CNS option to the USU Executive Committee; the Surgeons General of the Army, Navy and Air Force approved that request. The CNS option was then approved by the USU Board of Regents during its meeting held on February 27, 2002. And, the GSN welcomed its Charter Class of eight students in the GSN Perioperative CNS option in June of 2003. And, nine students entered the GSN Perioperative CNS option in June of 2004.

The Development of a Doctoral Program in Nursing. To meet an evolving requirement for nursing research relevant to the MHS, the USPHS, and other Federal Health Systems, in March of 2002, with the support of the Federal Nursing Chiefs, the GSN began the process for the development of a Doctoral Program in Nursing. The GSN Doctoral Program prepares nurses to be uniquely qualified as leaders in research, education, and clinical practice and serve in the MHS, USPHS, and other Federal Health Systems. In the context of concerns over patient safety, nursing research must be conducted to assess the linkages between nurse staffing, safety, and outcomes assessment throughout the TRICARE Management Activities.

Additionally, with the well-recognized national shortage of both staff nurses and nursing faculty, GSN doctoral graduates are prepared to augment faculty requirements in educational settings and to provide researchers for studying health care in the MHS, USPHS, and other Federal Health Systems.

In June of 2002, following the arrival of the second GSN Dean, **Patricia A. Hinton Walker, Ph.D., RN, FAAN**, parallel planning was initiated to review the existing curriculum to ensure the supportability of new programs. Following an analysis of capabilities, a curriculum was designed that would be responsive to the Federal Nursing Chiefs and flexible enough to easily adapt to the changing requirements of the Uniformed Services. The Doctoral Program in Nursing Science includes a common core of required courses and electives. The program consists of five areas of concentration: 1) *Nursing Knowledge*; 2) *Research Methods, Statistics, and Designs*; 3) *Cognate Courses*; 4) *MHS and Federal Health Care Policy and Issues*; and, 5) the *Dissertation*. Dean Hinton Walker presented the GSN Doctoral Program to the USU Board of Regents and received formal approval for the establishment of the Doctoral Program at the BOR meeting held on October 24, 2002. In addition, the GSN held inclusive focus sessions during 2003 to determine both the interest and support for its proposed doctoral program from doctorally-prepared nurses serving in the Uniformed Services, the Department of Veterans Affairs, and other Federal agencies. The GSN welcomed its Charter Class of three full-time and ten part-time students in the GSN Doctoral Program in June of 2003. Twelve additional students (four full-time and eight part-time) enrolled in the GSN Doctoral Program in 2004.

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GSN Nursing Philosophy.

I pledge myself to faithfully practice the profession of nursing. I recognize that with higher learning comes greater responsibility: first and foremost, to those placed in my care; to the advancement of nursing science; and, to the promotion of the nursing profession. I will strive for personal and professional growth through empirical knowledge and within the highest moral and ethical standards of research. I will remember the long and prestigious traditions of nursing, dating from the early battlefields to the diverse professions of today; and, upon this foundation, I am called to build. Whether caring for those in my own country or in a foreign land, I will not compromise their safety or dignity, but instead will care for them within the highest standards and practices of my profession.

- From the Oath taken by each new class of students at the GSN; the oath, developed by the Student Advisory Committee with input from the Federal Nursing Chiefs, was revised during the 2002-2003 Academic Year.

The philosophy of the GSN conforms to the mission and goals of the USU Strategic Plan. The GSN philosophy is built on a foundation of nursing theory, research, and advanced practice, which fosters critical thinking and a vision for the future health care requirements of the Uniformed Services. The GSN community believes that graduate nursing education builds on the foundation of the undergraduate nursing education already completed by the uniformed students. With that in mind, the GSN provides the Nation with nurses prepared at the Master Degree level (*and in the near future, the Doctoral Degree level*), who pursue learning experiences that will increase the breadth and depth of their knowledge base and enable them to specifically address the special needs of uniformed health care. The GSN prepares its students for collaborative and autonomous advanced practice roles with an emphasis on: health promotion and disease prevention (*readiness*); management and delivery of primary health care to families and individuals across the life span; case management for the chronically and stable acutely ill; anesthesia service; administration; and, unique expertise in emergency preparedness and military medical/nursing humanitarian assistance. Also, GSN students achieve an advanced level of knowledge to perform and provide leadership as uniformed officers in a joint service environment. And, finally, GSN graduates are prepared to participate in research or studies that are focused on operational readiness, clinical decision making, and population health and outcomes and will advance the Uniformed Health Profession and improve the practice of nursing as well as the welfare of patients throughout the Uniformed Health Systems.

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ACCREDITATION

Accreditation Granted by the National League for Nursing Accrediting Commission.

The Uniformed Services University of the Health Sciences Graduate School of Nursing (GSN) has met and exceeds all criteria for continuing accreditation. This program provides an outstanding model for preparing advanced practice nurses for military service and care of patients in crises and disaster situations.

- **The National League for Nursing Accrediting Commission**, Final Report, dated March 18, 2002, granting accreditation for the maximum term of eight years.

Background. The Commission on Higher Education of the Middle States Association of Colleges and Schools accredits the University. The National League for Nursing Accrediting Commission (NLNAC) and the Commission on Collegiate Nursing Education (CCNE) accredit the GSN. In addition to accreditation from the NLNAC and the CCNE, the MSN option in Nurse Anesthesia is also accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs (COA); and, the MSN Family Nurse Practitioner option meets, or exceeds, all standards established by the National Organization of Nurse Practitioner Faculties (NONPF).

In December of 1996, the USU GSN Master of Science in Nursing Degree Program was evaluated for accreditation by the National League for Nursing (NLN) Board of Review for Baccalaureate and Higher Degree Programs. The NLN Board of Review voted to grant accreditation to the USU GSN Master Degree Program and scheduled its next visit for reaccreditation during 2001; during 2000, the GSN began the preparation for its required self-study and site-visits.

Site Visit and Final Report of the NLNAC Site Surveyors. On October 30 through November 1, 2001, Site Surveyors from the National League for Nursing Accrediting Commission (NLNAC) visited the USU GSN. The following excerpt is taken from the final report of the NLNAC:

The accreditation visit was announced directly to the Nursing Chiefs of the United States Army, Navy, Air Force, and Public Health Service, who disseminated this information through written memoranda and verbal comments to staff at respective hospitals and installation sites. The Federal Nursing Chiefs met with the program evaluators and gave testimony to their support of the GSN. Comments during the meeting with the Federal Chiefs included: 1) we are excited to see the quality of the students who graduate from this program... they are exceptional leaders; 2) we are directly involved in helping the School understand the type of skills graduates need and find them very responsive to our suggestions; and, 3) we are pleased to see that more faculty are completing doctoral degrees and support the actions taken by the Dean to give faculty release time to make it possible for them to accomplish this goal.

In addition to meeting with the Federal Nursing Chiefs, the NLNAC also interviewed 17 individuals who represented the senior leadership at the University. Group conferences were held with the GSN faculty, the GSN Dean's Council, the GSN students, and the Nursing Chiefs of the Branches of the Uniformed Services and their Deputies. Reviewers attended numerous GSN classes, which included Neuroscience II, Basic Principles of Nurse Anesthesia Practice, and Advanced Health Assessment. Six agencies and USU facilities were visited: the Walter Reed Army Medical Center; the National Naval Medical Center's Family Practice Clinics; the National Capital Area Medical Simulation Center (SIMCEN); the Anatomical Teaching Laboratory at USU; the USU Learning Resource Center; and, the Silver Spring Office Complex of the GSN.

A thorough review of documents included: Policy and Precedent Statements; the VA/DoD Post-Master Adult Nurse Practitioner Distance Learning Program: From Concept to Graduation; the 2000 Edition of the USU Journal; the Program for Design Notebook for the proposed construction at the USU campus; the alumni survey tool and data summaries; the GSN Strategic Plan; Dean Abdellah's Curriculum Vita; Curriculum Vita for the entire GSN faculty; course syllabi and random selections from both the Family Nurse Practitioner and Nurse Anesthesia options; examples of students' scholarly projects; clinical site information; the GSN budget; most recent accreditation and approval reports; minutes from the GSN Faculty Council and Corps Chiefs Meetings; committee reports from the GSN Evaluation, Student Promotion, Student Advisory, and Admissions Committees; and, extensive course materials.

In a letter to the USU President, dated January 24, 2002, **the Honorable William Winkenwerder, Jr., M.D., Assistant Secretary of Defense for Health Affairs,** noted:

> **I wish to convey my congratulations to you, Dr. Abdellah, and the entire staff of the Graduate School of Nursing of the Uniformed Services University of the Health Sciences. Your outstanding performance was recently recognized by the National League for Nursing Accrediting Commission (NLNAC) in its report granting continuing accreditation for an impressive eight additional years. I am particularly gratified by the following statement: This program provides an outstanding model for preparing advanced practice nurses for military service and care of patients in crisis and disaster situations. This program is on the cutting edge of cost effectively incorporating advanced technology into the curriculum and instruction process to produce a highly competent practitioner... This is a truly outstanding review of the school, which reflects great credit upon your entire staff and our Military Health System. Congratulations to all for a job exceptionally well done!**

Notification of Maximum Accreditation. On March 18, 2002, the Dean of the GSN was formally notified of the action taken by the National League for Nursing Accrediting Commission at its meeting held on February 27, 2002: **"The Commission approved the Master Degree Program for continuing accreditation and scheduled the next evaluation visit for the Fall of 2009."** Patterns of strength affirmed by the Commission were identified as follows: the mission of the GSN; the Dean's exemplary leadership and expertise; and, the learning resources. The rationale for granting accreditation for the maximum of eight years was provided in the NLNAC final report:

> **The Uniformed Services University of the Health Sciences GSN has met and exceeds all criteria for continuing education. This program provides an outstanding model for preparing advanced practice nurses for military service and care of patients in crises and disaster**

situations. This program is on the cutting edge of cost effectively incorporating advanced technology into the curriculum and instruction process to produce a highly competent practitioner. This program can serve as a model to advance nursing education, practice and scholarship as nursing moves into care of the global community.

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Accreditation Granted by the Commission on Collegiate Nursing Education.

Background. The American Association of Colleges of Nursing (AACN) Commission on Collegiate Nursing Education (CCNE) has implemented an accreditation process for nursing programs. The GSN prepared and submitted material to meet the CCNE requirements for preliminary accreditation (a special accreditation for programs that had already received recent national accreditation from other organizations such as the NLN). The GSN material was accepted and the AACN/CCNE granted preliminary accreditation on February 27, 1998. A site visit was scheduled by the CCNE for November of 2001.

Site Visit and Final Report of the CCNE Evaluation Team. On November 14 through 16, 2001, the CCNE Evaluation Team visited the USU GSN. The following excerpts were taken from the final CCNE report:

The GSN faculty members are responsive to the needs of the Federal Nursing Chiefs of the Uniformed Services and are willing to work on program modifications suggested by this external community of interest... Communication between the GSN faculty and the Federal Nursing Chiefs is enhanced by monthly teleconferences and semi-annual meetings. In addition, the GSN has an accreditation committee that works to ensure that consistency and congruence between mission, philosophy, and goals/objectives occur within each program. Students described responsiveness of the faculty in assisting them to meet the objectives of the program and in making alterations as necessary in compliance with the mission of the school and university.

Faculty members have extensive opportunities to participate in the governance of the USU GSN. Faculty identified professional and collegial collaboration between all military and civilian GSN faculty, as well as other faculty at the University level... USU provides a supportive environment for teaching, research, service, and practice... Support is given to faculty for development in areas such as time for clinical practice, service to national organizations, and pursuit of doctoral education... All faculty interviewed articulated an overwhelming commitment to the GSN, the students, and their jobs. They describe a genuine happiness with coming to work each day and preparing the best nurses for military service that can possibly be accomplished.

Students reported participation in GSN program decisions and open communication patterns with all GSN faculty. Their feedback is utilized, and the students reported that they are notified of program changes. Students were very articulate in describing the process used to provide input into program development. The GSN has an excellent educational environment with many state-of-the-art laboratory simulation rooms, library and resource materials, and

technological support services... GSN students interviewed verbalized knowledge of the many resources available to them on campus and had overwhelmingly positive comments about the laboratories, libraries, simulation center, and virtual reality programs available to them for study.

The inclusion of an interdisciplinary approach to course implementation and content delivery was evident by interdisciplinary team teaching and collaboration across departments. Opportunities to participate in health care delivery on a global scale are consistent with the mission of the university and the professional standards. Clinical experiences are in a variety of sites, all of which are accredited by JCAHO and COA. All clinical sites support the curriculum and course objectives and provide a variety of learning opportunities for clients across the lifespan. Many of the clinical sites are military-related and further support the socialization of the student into the role of the military Advanced Nurse Practitioner.

CCNE Evaluation Team Process. While visiting the GSN campus, the CCNE Evaluation Team had an opportunity to interview school and university officials, program faculty, clinical preceptors, students, and other community representatives. During the site visit, the CCNE Evaluation Team also met with the Federal Nursing Chiefs in their capacity as the Board of Advisors to the GSN. As with the NLNAC evaluators, the Federal Nursing Chiefs once more expressed their strong endorsement and satisfaction with the graduates of the GSN. The Evaluation Team reviewed information provided in the self-study document, as well as other materials provided in the resource room, to include information requested by the Evaluation Team. In addition, the CCNE Team also observed classroom and clinical activities. The Evaluation Team reviewed and provided assessments on the following Standards for Accreditation: Mission and Governance; Program Quality - Institutional Commitment and Resources; Program Quality - Curriculum and Teaching-Learning Practices; and, Program Effectiveness - Student Performance and Faculty Accomplishments. The Evaluation Team's final report found that the GSN had met all Standards and all Key Elements of the Standards with no recommendations for improvement.

Notification of Maximum Accreditation. On May 16, 2002, the Dean of the GSN received official notification from the Commission on Collegiate Nursing Education that **"the CCNE Board of Commissioners acted at its meeting on April 20, 2002, to grant accreditation of the Master Degree Program in Nursing at the Uniformed Services University of the Health Sciences for a term of 10 years, extending to June 30, 2012."** The next on-site evaluation is scheduled for the Fall of 2011. The following rationale was provided for the maximum accreditation of 10 years without recommendations:

At its meeting the CCNE Board determined that the program met all four accreditation standards. The Board additionally determined that there are no compliance concerns with respect to the key elements. The Commissioners express our best wishes as you proceed with tasks important to the future of your nursing program.

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Re-Accreditation Granted by the Council on Accreditation of Nurse Anesthesia Educational Programs.

> **The members of the Council on Accreditation of Nurse Anesthesia Educational Programs (COA) are pleased to inform the Uniformed Services University of the Health Sciences Graduate School of Nursing Nurse Anesthesia Program... that continued accreditation has been granted... Given this action of the COA, the program will be scheduled for its next consideration of continued accreditation in the Fall of 2013... Finally, the COA would like you to know that very few programs are not required to submit progress reports following an accreditation review and even fewer programs have achieved the maximum accreditation of ten years. Therefore, the members of the COA are particularly happy to offer their congratulations to everyone at the program who has demonstrated their commitment to meeting the requirements for continued accreditation.**
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> - **The Council on Accreditation of Nurse Anesthesia Educational Programs (COA),** Letter to the USU GSN, October 31, 2003.

In September of 2002, the Nurse Anesthesia Program embarked on a re-accreditation process. Under the leadership of the Re-Accreditation Task Force Co-Chairs, **LtCol Paul Austin, USAF, NC,** and **CAPT Cynthia Cappello, NC, USN,** the self-study was prepared based on the new accreditation standards of the COA. Resulting from the first revision in many years, the new standards *raised the bar* for Nurse Anesthesia Programs. The entire curriculum was reviewed, including the didactic and clinical phases. In April of 2003, the COA reviewers visited the USU campus and clinical sites at the Walter Reed Army Medical Center and the Wright-Patterson Air Force Base Medical Center in Ohio. The reviewers met with school and university officials, program faculty, clinical site personnel, students, and other community representatives. The reviewers also met with representatives of the Federal Nursing Chiefs in their capacity as the Board of Advisors to the GSN. All educational materials were reviewed as well as the physical plant and clinical activities. The reviewers' outbrief lauded the entire program.

Notification of Maximum Accreditation. In October of 2003, USU received notification that the Nurse Anesthesia Program had been awarded a ten-year accreditation, as ***the very first program in the Nation re-accredited under the new standards and the very first program in the Nation granted the maximum ten-year re-accreditation***. The COA commended the GSN and the University for its excellent program and noted ***zero critical weaknesses***.

Self-Study Used as a National Example. The COA viewed the USU Nurse Anesthesia Program Self-Study as the benchmark for other programs. In 2004, officials from the COA requested permission to use the GSN Self-Study to guide and assist the seventy-seven other Nurse Anesthesia Programs in the United States in meeting the newly established COA standards.

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Establishment of an Honor Society of Nursing at USU. The USU Graduate School of Nursing was informed during 1998, that it had been approved by Sigma Theta Tau to sponsor a Nursing Honor Society, with the intent of becoming a Member Chapter of Sigma Theta Tau International. The Honor Society was formally established during graduation exercises in 1999 to recognize the academic excellence of students, the clinical and educational acumen of preceptors, and the contributions of nursing leaders in the community. *Membership in Sigma Theta Tau is the hallmark of a committed nursing professional* and offers great rewards in terms of potential funding for nursing research, networking with professional colleagues, and professional advancement. The 139 members who have been inducted into the GSN Honor Society are representative of the GSN's diverse student body along with senior leaders in nursing from both the uniformed and civilian sectors. Over the past several years, the GSN Honor Society has co-sponsored a series of women's health programs at the Women in Military Service Memorial at the Arlington National Cemetery. In addition, the Honor Society sponsored a military nursing research colloquium.

The GSN Honor Society co-sponsored a series of women's health programs at the Women in Military Service Memorial at the Arlington National Cemetery. In addition, the Honor Society sponsored a military nursing research colloquium. The application for approval as a Chapter of the Sigma Theta Tau International Honor Society of Nursing was forwarded in the Fall of 2002; and, a site visit by a member of Sigma Theta Tau was conducted in April of 2003. Following the site visit and extensive review of the GSN Honor Society, the Sigma Theta Tau site visitor indicated that her recommendation to the Sigma Theta Tau Board would be positive. Consequently, after review by the Sigma Theta Tau Board and approval by the Sigma Theta Tau House of Delegates, the GSN held a Sigma Theta Tau Charter Initiation Ceremony. The Tau Theta Induction Ceremony took place on May 10, 2004. Doctor May Wykle, immediate past president of Sigma Theta Tau International (STTI), presided and assisted the 438th Chapter of Sigma Theta Tau induct 192 charter members.

Since the induction, the officers and members of Tau Theta have been planning fundraising and meeting activities. As part of their fundraising efforts, a *Silent Auction* was held during the October 15, 2004 general membership meeting; over $3,000 was raised, which will be used to recognize and reward individuals in the areas of research, practice, administration, and education. The meeting was attended by over 40 members who participated in planning future Tau Theta activities. To better support its large, geographically disparate membership, Tau Theta leaders have developed a web presence for the 438th Chapter. In February of 2005, all Tau Theta members were provided with a *URL*, a Log-on ID, and a *Password* to access the on-line chapter site. Tau Theta has planned a very productive future, which includes: collaborating with STTI in developing a model interactive on-line chapter community; conducting a series of inductions at area DoD medical facilities; coordinating a membership meeting in conjunction with USU Founders Day Activities to be held in September of 2005; and, hosting the 2006 Region 12 Research Day Conference.

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MILITARY UNIQUE CURRICULA

The GSN Curricula Respond to the Special Needs of the Uniformed Services.

Background. The USU GSN is unique among the Nation's nursing programs because it educates students to treat and care for both civilian and uniformed personnel in peace, war, disaster, and other situations that occur under austere conditions. There is no other institution better positioned than the GSN to prepare nurses with research, education, and leadership expertise as required by the MHS, USPHS, and other Federal Health Systems. The GSN curricula have been driven by special requirements to meet the missions of the DoD and the USPHS. Common to the GSN academic curricula is subject matter relevant to military health care providers; for example, there are operational readiness components in each course. And, continuous consultation takes place with the Federal Nursing Chiefs during the on-going development and review of the GSN curricula in order to ensure that the special needs of the Uniformed Services are being met by the GSN graduates.

Based on the Federal Nursing Chiefs' initial indications that the career advancement of their officers would be enhanced through the completion of a Master Thesis, the GSN examined the feasibility of the completion of a thesis within the time constraints of its programs. Following an assessment of multiple program components, including a review of the graduating students' research projects and faculty expertise, a Master Thesis, which would become an extension of the charter students' research projects, was made a requirement for all graduating students, beginning with the graduating Class of 1996. However, during 1999, following consultation with the Federal Nursing Chiefs, it was determined that the GSN students could now choose among several types of scholarly projects, which include: research culminating in either a written thesis or a publishable paper; a research practicum; and/or, a defined project. Whichever option is chosen, any scholarly project may be completed individually or as a group project. A GSN research committee ensures that each scholarly project meets the Uniformed Services University of the Health Sciences' requirements for a Master of Science Degree.

Another example of the GSN's continuous response to the Services occurred when the Class of 1995 GSN graduates and their uniformed supervisors recommended the inclusion of training for such requirements as suturing, basic laboratory testing, and triage. The GSN faculty agreed and incorporated those procedures into the appropriate GSN courses. The graduates from the Family Nurse Practitioner option also recommended the addition of Anatomy and Cell Biology into the curriculum, which occurred during 1999. And, at the recommendation of the GSN students and faculty, during 2000, objective clinical examinations using simulated patients were implemented throughout the core courses of the GSN MSN Program. Also, as discussed earlier, the GSN developed an MSN Degree option for a Clinical Nurse Specialist at the request of the Federal Nursing Chiefs.

The GSN also responds to the impact of the current nursing shortage across the Nation; its evolving programs at both the Master and Doctoral Degree levels serve as incentives for the retention of uniformed nurses in the MHS and USPHS to serve as practitioners, nurse educators, or researchers. A critical, nation-wide nursing shortage is no longer predicted as a possibility; it has arrived. The following information from the American Association of Colleges of Nursing captures the impact of the current nursing shortages on health care delivery and medical readiness in both the civilian and uniformed sectors of our Nation:

According to the latest projections from the United States Bureau of Labor Statistics published in the November 2001, Monthly Labor Review, more than one million new and replacement nurses will be needed by 2010. The United States Department of Labor projects a 21 percent increase in the need for nurses nation-wide from 1998 to 2008, compared with a 14 percent increase for all other occupations (<*www.bls.gov*>);

According to a survey by the American Association of Colleges of Nursing, *2000-2001 Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing*, nursing schools turned away 5,823 qualified applicants across the United States due to insufficient number of faculty, clinical sites, classroom space, clinical preceptors, and budget constraints. More than a third (38.8 percent) of schools that responded pointed to faculty shortages as a reason for not accepting all qualified applicants into entry-level baccalaureate programs (<*www.aacn.nche.edu*>);

Graduations from Master and Doctoral Programs in Nursing are decreasing, which translates into a smaller pool of potential nurse educators. According to AACN's *2000-2001 Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing*, graduations from Masters Degree Programs were down 3 percent; graduations from Doctoral Programs were down 11 percent (<*www.aacn.nche.edu*>); and,

Higher Compensation in clinical and private sector settings is luring current and potential nurse educators away from teaching. According to the *2001 National Salary Survey of Nurse Practitioners* completed by ADVANCE for Nurse Practitioners magazine, the average salary of a master-prepared nurse practitioner working in his or her private practice was $78,217. In contrast, AACN reports that master-prepared nursing faculty across all ranks earned an average salary of $54,980 (<*www.aacn.nche.edu*> and <*www.advancefornp.com/npsalsurvey.html*>).

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Advanced Nursing Education in a Joint Service Environment. GSN Students are provided military unique education in the joint service environment of the University, which includes the Army, Navy, Air Force, and the United States Public Health Service (USPHS). Graduates are prepared to deliver care in a variety of settings and communities, both nationally and internationally. GSN graduates are equipped to contribute to the Uniformed Services' peacetime health care delivery systems and to provide military and public health support during combat operations, civil disasters, and humanitarian missions. They may serve in clinics or hospitals, the combat zones of theaters of operations under austere and harsh conditions, on Navy ships, or in isolated areas of the United States and other countries lacking health care providers. The GSN faculty and staff believe that the placement of the GSN within the interdisciplinary boundaries of the University is a distinct strength. The QuadService environment of the USU offers a unique blend of interactive didactic and clinical experiences that support the preparation of competent advanced practice nurses for service to the Nation during international conflict, in peacetime, and wherever humanitarian services and support for disaster relief are required. The multi-Service clinical practice sites of the GSN include: 21 military treatment centers (MTFs); and, 111 non-DoD, Federal, and civilian hospitals and primary care health care clinics generally located in the Washington, D.C. area.

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GSN Students Understand the Structure of a Joint Environment. To meet the readiness requirements of the Military Health System, it is essential that professional health care officers are familiar with the structure of a joint environment. Under the leadership of the USU Brigade Commander and the GSN Commandant, the uniformed students, faculty, and staff assigned and reporting to the GSN participate in all activities and events as they would in any other command of the Uniformed Services. Regular military formations are held; physical fitness exercises, standards, and testing are adhered to; performance evaluations are completed; and, uniformed personnel in the GSN are trained in the appropriate uniformed programs and customs. The students of the GSN participate in joint-service educational experiences throughout the MSN Degree Program; and, as a result, they become familiar with the regulations, procedures, and vocabularies of the QuadServices' health care systems. The GSN Commandant provides mentorship and guidance related to leadership, military customs and traditions, administrative requirements, and protocols to all of the uniformed officers enrolled in the GSN. Beginning with the GSN's first Commandant, Colonel Regina Aune, United States Air Force, the Nursing Chiefs have demonstrated their significant support for the GSN by assigning their very best officers to fill this critical position. The following officers have held the position since Colonel Aune's departure: Lieutenant Colonel Lori Fritz, United States Army; Lieutenant Colonel Judy Ikirt, United States Air Force; Lieutenant Colonel Marjorie Graziano, United States Air Force; Colonel Karen Gausman, United States Army (2001-2003); Lieutenant Colonel Regina Tellitocci, United States Army (2003); and, Lieutenant Colonel (P) C. J. Moore, United States Army (2004).

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Medical Readiness Training.

Students entering the GSN at USU have, on average, ten years of active military service as a registered nurse and officer. Almost half of these students have been deployed either on a humanitarian or combat oriented mission, and all of them have had rank- and specialty-specific military training.

Approximately 450 hours of operational medicine are integrated into all GSN programs. Graduates receive approximately 25 hours in the GSN core courses, over 290 hours of specialty-specific content within individual programs, 78 hours of didactic instruction in Military Contingency Medicine, and 12 hours in the Operation Readiness Course.

The Family Nurse Practitioner (FNP) and Perioperative Clinical Nurse Specialist (CNS) programs provide, on average, 8-10 more credit hours and 16 more weeks of education than the typical civilian FNP or CNS program. Students receive a minimum of 150 hours of classroom and simulation lab experiences learning military, operational, medical and leadership principles and over 90 hours applying this knowledge in a field environment. No other program provides this type of a learning experience.

The Nurse Anesthesia Program incorporates unique content that emphasizes operational readiness competencies. Students participate in simulation experiences incorporating field anesthesia practices and operational readiness discussions. In addition, some medical treatment facilities provide operational training including simulated deployment on humanitarian missions and animal laboratory experiences. The latter gives students practice

in advanced airway and venous access procedures. Senior students return to the university for an additional week of operational readiness training.

- **USU Board of Regents**, *Graduate School of Nursing Curriculum*, 2005 Report to the Secretary of Defense, page 11.

Because of the unique practice requirements for USU graduates as uniformed officers, the GSN faculty has included an additional terminal objective heading, "Readiness," not included in the American Association of Colleges of Nursing (AACN) "Essentials" document. *Readiness* was added to focus on specialized competency objectives encompassing the ability of the USU graduates to function during deployment or humanitarian health care circumstances. GSN terminal objective 6, which refers to the readiness of graduates to function during deployments or humanitarian health care circumstances, states that graduates will "adapt readily to changes in individual and environmental health care demands." To accomplish this objective, the GSN developed a core course, Operational Readiness, to provide mobility and field training. Lectures address the setup of field hospitals, the function and utilization of Navy hospital ships, aeromedical evacuation, and the use of telemedicine in the field.

- *IX, Graduate Education in Nursing,* Subcommittee Report, Middle States Association of Colleges and Schools (MSA) Self-Study, submitted in preparation for the 2003 site visit, pages 2 and 3.

As of April 2005, 110 students are enrolled on campus in the GSN (26 in the Family Nurse Practitioner option of the MSN Program; 17 in the Perioperative Clinical Nurse Specialist option; 44 in the Nurse Anesthesia option; and, 7 full-time/16 part-time in the Doctoral Program). One hundred and four commissioned officers represent the Services as follows: Army - 33; Navy - 16; Air Force - 48; and, Public Health Service - 7. Three of the remaining students are sponsored by the Veterans Administration; one student is sponsored by the Walter Reed Army Medical Center; one by the Agency for Healthcare Research and Quality; and, the final student is sponsored by USU/DoD. These GSN students receive operational medicine and military relevant material and training throughout the GSN curricula; as such, readiness is identified as one of the GSN's outcome goals. The GSN program of study is designed to: prepare students to adapt readily to changes in individual, system, and environmental health care demands; provide safe care under austere conditions; and, be flexible in caring for patients with unusual clinical presentations through the use of available resources. The program of study for the students has evolved to include additional clinical hours to prepare the GSN graduates for an immediate transition to work settings in either fixed facilities or deployed environments. Since April of 2001, GSN students complete a two-day course on humanitarian assistance. The Medical Humanitarian Assistance Course is designed to prepare advanced practice nurses for deployment in support of disaster relief and humanitarian missions. Emergency conditions, such as natural disasters, usually involve a humanitarian component and require the commitment of the Uniformed Services, often under austere conditions. The course includes guest speakers who present information on the Federal Emergency Management Agency, Non-Governmental Organizations, chemical-biological warfare, ethics, and epidemiology. The GSN continuously expands its educational programs to address the changing nature or threats caused by weapons of mass destruction. In

addition, GSN faculty were represented and participated in an International Coalition of Nursing Leaders that focused on the development of nursing curricula concerned with addressing the aftermath of weapons of mass destruction.

Preparing for the Battle.

As Army Nurse Corps officers in the USU Master Degree Family Nurse Practitioner Program, our education further prepares us to live out our motto - *Ready, Caring, Proud.*

Operation Bushmaster provided a scenario portraying a hostile environment. The week-long exercise (conducted in San Antonio, Texas) **allowed for Advanced Practice Nursing and School of Medicine students to work together in a field environment under simulated battlefield conditions. Seven graduate nursing students, 60 USU medical students, and 11 additional medical students from Japan and the United Kingdom were responsible for triage, management and evacuation of casualties.**

"We students found ourselves triaging and aggressively maintaining patient care as second nature. Biological and chemical agents played a much bigger part in our scenarios than we had experienced in previous training. The threat of these weapons was ever-present and a time consuming enemy tactic for all medical personnel that required proactive planning. At other times, both nurses and medical students racked their brains attempting to diagnose infrequently seen diseases, such as meningitis and malaria... Exotic diseases were present in our training scenarios as well. With the assistance of battlefield telemedicine and satellite communication with stateside facilities, such as the Walter Reed Army Medical Center in Washington, D.C., we were able to describe afflictions and send photos of patients for consultation, diagnosis, and treatment."

- **Nursing Spectrum,** *Caring for Those in Harm's Way*, Volume 13, No. 6DC, March 24, 2003, pages 8-9.

During the 2004 Operation Bushmaster exercises, 19 GSN students collaborated in a field environment with USU SOM students and medical students from Japan and the United Kingdom. Under simulated battlefield conditions, a war was fought in the mythical country of "Pandakar." All students served in a variety of roles to include the senior medical officer, commander, radio operator, litter bearer, security officer, and ambulance platoon leader. For a majority of the participating nurses, this served as a continuation of training under austere conditions. During their previous years of military service, several of the GSN students had been deployed on real world missions and had already completed courses in Trauma Nurse Critical Care and Combat Casualty Care. However, Operation Bushmaster provided unique clinical and leadership training opportunities for simulating the role of an Advanced Practice Nurse in a multi-disciplinary setting.

Both GSN and SOM students gained a strengthened appreciation for the role of the senior medical officer on the battlefield. Their playing field was leveled as they came to understand the common goal of ***providing good medicine in bad places.*** As they boosted each other's morale during the exhausting exercise, the GSN and SOM students recognized the synergies and challenges shared by the entire team. Operation Bushmaster has added a new dimension to the training of advanced practice nurses; ***Bushmaster embodies***

the spirit of the USU motto, Learning to Care for Those in Harm's Way. The GSN graduate students will continue to be fully integrated into the Bushmaster field exercises with the fourth-year medical students in the Summer of 2005 when the exercise moves to Fort Indian Town Gap, Pennsylvania. During a recent briefing, Major General Pollock (the current Army Nurse Corps Chief) indicated that Army Family Nurse Practitioners could be placed further forward in an operational environment as an independent practitioner filling some physician assistant slots and could potentially deploy within the first year after their completion of the FNP option. Because of the military's current involvement in multiple war and peace-keeping efforts throughout the world, it is essential for real-time operational training to continue to be included as part of the graduate school's curriculum.

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STUDENT AFFAIRS

Students reported participation in GSN program decisions and open communication patterns with all GSN faculty. Their feedback is utilized, and the students reported that they are notified of program changes. Students were very articulate in describing the process used to provide input into program development. The GSN has an excellent educational environment with many state-of-the-art laboratory simulation rooms, library and resource materials, and technological support services. Most classrooms are equipped with technology such as computers or LCD players for PowerPoint presentations and Internet access. A state-of-the-art simulation center is available to the GSN and is equipped with 12 fully equipped patient treatment rooms with computer, video, and audio equipment. In addition, the simulation center has a distance education teleconference room, a computer laboratory, and an operating room simulation laboratory with manikin simulators and anesthesia equipment which mimics that used in the military field. Virtual reality anatomy lectures are cutting edge and are available for approximately four anatomic systems. GSN students interviewed verbalized knowledge of the many resources available to them on campus and had overwhelmingly positive comments about the laboratories, libraries, simulation center, and virtual reality programs available to them for study.

- **Commission on Collegiate Nursing Education (CCNE)**, Final Report of the Evaluation Team, dated April 20, 2002, granting accreditation through June 30, 2012.

The Selection Process. A commitment to the Nation must be evidenced in an applicant's decision to attend the GSN. The GSN Admissions Committee makes the final determination regarding admission to the GSN with the concurrence of the Dean. The membership of the Admissions Committee is different from those at other schools of nursing. In addition to members of the GSN faculty, the Committee has representatives from each of the Uniformed Services and faculty from the School of Medicine.

The applicant pool is unique. Applications to attend the GSN are submitted in accordance with the guidelines of the Services for Long Term Health Education and Training (Army), Duty Under Instruction (Navy), and Sponsored Graduate Education Programs (Air Force Institute of Technology). Officers from the Public Health Service are sponsored by their individual Agencies. The Admissions Committee of the GSN reviews the applicants' records on the basis of academic merit, which shows that the applicants can succeed in a graduate program. Academic aptitude is balanced against the evidence of future officership and continuing commitment to service in the Uniformed Services. The candidates nominated and selected by the Uniformed Services have had grade point averages of between 3.2 and 4.0 in their Baccalaureate Programs; and, most have had an average of between eight to twelve years of active duty experience in the Uniformed Services.

Annually, the GSN reviews between 75 and 90 applicants and admits between 45 to 52 students. GSN students in the MSN Program are full-time and retain their rank as officers. GSN students in the Doctoral Programs may be full-time or part-time; and, uniformed officers retain their ranks while attending the GSN. To sustain the GSN's high graduation rate, incoming students receive instruction on time management and test taking skills. Committed faculty promote student retention through both didactic and lab review sessions.

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Class of 2006. The USU GSN welcomed the MSN Class of 2006, 51 active duty officers, during June of 2004. Eighteen officers were enrolled in the Family Nurse Practitioner (FNP) Class of 2006, bringing the enrollment of the two FNP classes (First and Second Year) to a total of 26 students. Twenty-four uniformed officers were enrolled in the Nurse Anesthesia Class of 2006, bringing the enrollment of the two Nurse Anesthesia classes (First and Second Year) to a total of 44 students. And, nine uniformed officers were enrolled in the Perioperative Clinical Nurse Specialist (PCNS) Class of 2006, bringing the enrollment of the two PCNS classes (First and Second Year) to a total of 17 students.

Of the 51 uniformed officers enrolled as First-Year GSN students: sixteen are members of the Army; eight are members of the Navy; twenty-six are members of the Air Force; and, one is a member of the Public Health Service. The GSN students range in grade from 0-2 to 0-4 with the majority at the 0-3 level. The student's service agreement following graduation is approximately two years of service for each year of education.

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Development and Functions of the Student Advisory Council - A Strong Avenue of Communication.

Background. Beginning in October of 1998 and continuing throughout 2004, the GSN students, faculty, and staff, in coordination with the Federal Nursing Chiefs and the Office of Student Affairs, School of Medicine, worked to develop and implement the Student Advisory Council. The Student Advisory Council was initially established during 1998 to: 1) advise the Dean, GSN, on matters of student interest and concern; 2) provide an active and visible means for the student body to communicate directly with the Dean; and, 3) serve as a process improvement mechanism and a forum for addressing student issues.

The Student Advisory Council (SAC) is an independent entity that exists to represent the GSN student body; it is not an element of the military rating chain, nor an extension of the administration. It serves as a line of communication between the student body and the administration of the GSN. The Council is designed to discuss student issues that arise across class boundaries and to provide a student body consensus, which may then be communicated to the Dean, GSN, and other responsible school officials.

Composition. The GSN Student Advisory Council consists of the student president, secretary, one representative from each MSN option area and class (thus two each from Nurse Anesthesia and Family Nurse Practitioner) and one representative from the Post-Master (PM) Nurse Practitioner Class. All members of the SAC are voting members. The president of the SAC is ordinarily the second-year class president.

The SAC Faculty Advisor assists and advises each class on the functions and responsibilities of the SAC, and works with the GSN Commandant to ensure that class elections of officers and academic representatives are completed on schedule each academic year.

Functions of the Council. The Student Advisory Council meets six times during the academic year, or more frequently as required. Decisions on any issue discussed at a meeting require a majority vote of the attending members. The student president prepares meeting agendas from input provided by other SAC members, conducts the meetings, and coordinates discussions and votes to establish a consensus of the

student body. The student president also met regularly during 2004 with the GSN Dean to discuss matters of interest to the student body. The SAC representatives act as advocates for the students in academic matters. They also act as a liaison between students and academic program areas and serve as the communication link for the students on such matters as changes in the academic schedule, rooms, etc. SAC representatives are responsible for writing an After Action Report at the conclusion of each academic semester, which is also discussed with the Dean. This report is a summary of student comments and feedback about each course, including faculty, books, and materials within the MSN Program options. Based upon its activities during 2004, the Student Advisory Council is serving as an excellent forum to ensure faculty/student involvement, communication, and on-going curriculum improvements.

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GSN Class of 2004 Outstanding Student Awards. Annually, the GSN Students are recognized for excellence in academics and clinical practice. During 2004, the following awards were presented:

Family Nurse Practitioner - Outstanding Graduate Award. **Lieutenant Commander (s) Barbara Mullen, USN,** distinguished herself as a student in the graduating Family Nurse Practitioner Class. This award recognizes that LCDR Mullen employed a sound scientific foundation, an inquiring mind, and a collaborative approach for the comprehensive care of her patients; and, she demonstrated personal initiative, perseverance, and outstanding characteristics throughout her academic endeavors at USU.

Family Nurse Practitioner - Academic Performance Award. **Lieutenant Commander (s) Barbara Mullen, USN,** received the Distinguished Academic Performance Award, which recognizes the student having the most outstanding academic proficiency in the graduating Family Nurse Practitioner Class.

Family Nurse Practitioner - Distinguished Clinical Performance Award. **Captain Barbara Reilly, USA,** received the Distinguished Clinical Performance Award, which recognizes the student having the most outstanding clinical proficiency in the graduating Family Nurse Practitioner Class.

Family Nurse Practitioner - First Year Outstanding Student Award. **Captain Mikesha Caulk, USA,** was selected to receive the First Year Outstanding Student Award.

Who's Who Among Students in American Universities and Colleges - FNP Program. **Lieutenant Commander (s) Barbara Mullen USN,** was recognized by Who's Who Among Students in American Universities and Colleges upon her graduation from the GSN.

Family Nurse Practitioner - Dean's Award for Research Excellence. **Lieutenant Commander (s) Barbara Mullen, USN,** received the Dean's Award for Research Excellence. The Dean's Award for Research Excellence recognizes the graduating student in the FNP Program demonstrating the most outstanding proficiency in nursing research.

Nurse Anesthesia - Outstanding Graduate Award. **Captain Joy Barerio, USAF,** distinguished herself as a student in the graduating Nurse Anesthesia Class. This award recognizes Captain Barerio for achieving high levels of academic performance while simultaneously demonstrating outstanding leadership qualities at USU.

Who's Who Among Students in American Universities and Colleges - RNA Program. **Captain Joy Barerio, USAF,** was recognized by Who's Who Among Students in American Universities and Colleges upon her graduation from the GSN.

Nurse Anesthesia - Distinguished Clinical Performance Award. **Lieutenant Adam Leeds, PHS,** received the Distinguished Clinical Performance Award, which recognizes the student having the most outstanding clinical proficiency in the graduating Nurse Anesthesia Class.

Nurse Anesthesia - Distinguished Academic Performance Award. **Captain William Dean Gilmer, USAF,** received the Distinguished Academic Performance Award, which recognizes the student having the most outstanding academic proficiency in the graduating Nurse Anesthesia Class.

Nurse Anesthesia - First Year Outstanding Student Award. **Captain Benjamin P. Landry, USAF,** was recognized as the First Year Outstanding Student for Nurse Anesthesia.

Nurse Anesthesia Presents the Agatha Hodgins Award. **Captain William Dean Gilmer, USAF,** was selected from the graduating Nurse Anesthesia Class of 2004 to receive the Agatha Hodgins Award during the USU Commencement Ceremonies in May of 2004. Captain Gilmer received the award upon completing the 18-month clinical phase in December of 2004. The award, established in 1975, recognizes a graduating nurse anesthesia student for outstanding accomplishments in both the classroom and clinical arenas of nurse anesthesia education. The recipient's dedication to excellence has furthered the art and science of nurse anesthesia. *Background.* The award was established in honor of Agatha Cobourg Hodgins (1877-1945), founder and first president of the National Association of Nurse Anesthetists. This organization was later renamed the American Association of Nurse Anesthetists. Miss Hodgins and Dr. George Crile pioneered the first known nurse anesthesia school and hospital service at Lakeside Hospital in Cleveland, Ohio. During World War I, Miss Hodgins trained nurse anesthetists for military service. She also assisted with the development of the early anesthesia machines and later with the perfection of anesthesia techniques still in use today.

Perioperative Clinical Nurse Specialist - First Year Outstanding Student Award. **Captain Jason Nelson, USA,** was selected to receive the First Year Outstanding Student Award for the Perioperative Clinical Nurse Specialist first year class.

GSN Student at Large Award 2004 - Esprit de Corps Award. **Captain Barbara Reilly, USA,** was selected to receive the Esprit de Corps Award. The Esprit de Corps Award recognizes one student from the graduating classes of the Graduate School of Nursing Master of Science in Nursing (MSN) Program who by thought, word, action, and deed, demonstrates sensitive humanistic qualities for the well being of all. By

example, Captain Reilly has inspired all of her classmates to enjoy their camaraderie, their profession, and their commitment to a life of service to mankind.

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GSN Students Participate at the American Association of Nurse Anesthetists (AANA) 71st Annual Meeting. The 71st Annual Meeting of the American Association of Nurse Anesthetists was held at the Washington State Convention Center in Seattle, Washington, during August of 2004. The meeting highlighted many accomplishments of Air Force Nurse Anesthetists with Major General Brannon, USAF, among the distinguished guests.

Lieutenant Colonel Paula Goodman, USAF (Ret.), was named the American Association of Nurse Anesthetists 2004 Clinical Instructor of the Year. She was nominated by her colleagues and students at the USU GSN Nurse Anesthesia Program clinical site located at the Wright-Patterson Air Force Base Medical Center. LtCol Goodman served for over five years as a clinical instructor, instilling the importance of knowledge, professionalism, and ethical conduct in her RNA students. By promoting advanced education, research, and diversity, she developed highly educated, proficient practitioners who continue to set the standard of excellence as nurse anesthetists.

AANA College Bowl. A popular event of the AANA Annual Meeting is the College Bowl. Six teams of four students competed *head-to-head* in preliminary rounds with the winners meeting in the final round. The GSN RNA Program was well represented in this event by three outstanding students: **Captain Joy Barberio, USAF**; **Captain Brian Molloy, USAF**; and, **Captain Erica Spillane, USAF**.

Poster Presentations. Nurse Anesthesia students from the GSN also submitted poster presentations at the 71st Annual Meeting of the AANA held in Seattle, Washington. Eight students of the Class of 2004 participated in the research efforts that resulted in the poster presentations. Research topics are indicated below (presenter's name is underlined):

Readiness Estimate and Deployability Index for Air Force Nurse Anesthetists: Mark Stevenson, SRNA, USAF, NC; Robert Scholes, SRNA, USAF, NC;

A History of Nurse Anesthesia in the Air Force: Robert Bland, SRNA, USAF, NC; David Perkins, SRNA, USAF, NC;

Pollution of Ambient Air by Volatile Anesthetics - Comparison of Four Anesthetics - Comparison of Four Management Techniques: Joy Barberio, SRNA, USAF, NC; Jason Bolt, SRNA, USAF, NC;

The Use of Ultrasound in Placement of Intravenous Catheters: Said Acosta, SRNA, USAF, NC; Hector Aponte, SRNA, USAF, NC;

The Effects of Fatigue on Performance of Anesthesia Providers in a Simulator Setting: Lieutenant Commander C. Cooper; Lieutenant R. Nations; Lieutenant L. Rhodes; Lieutenant J. Volk; Lieutenant Commander J.F. Burkard; Commander J. Pellegrini (Navy Nurse Corps Anesthesia Program, San Diego, California); and,

Performance of Portable Anesthesia Machine Ventilators Across Worsening Lung Conditions: Lieutenant Adam Leeds; Captain Christian Swift; Lieutenant Colonel Jacqueline Stark; and, Lieutenant Colonel Paul Austin.

Tri-Service Combat Anesthesia Symposium. **Major David Stamps (CRNA) EMEDS Course Director** at Brooks Air Force Base, was the organizer and presiding officer for the *Tri-Service Combat Anesthesia Symposium: Experiences from Operations Enduring Freedom and Iraqi Freedom* on August 10, 2004. Presenters included **Major Wade Morcom, USA, AN (CRNA)**; **Lieutenant Commander David Sheppard, USN, NC (CRNA)**; and, **Major Adrienne Hartgerink, USAF, NC (CRNA)**. This symposium, attended by approximately 200 anesthetists, gave the audience a unique perspective about caring for casualties in the Global War on Terror.

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GSN ALUMNI

I was the only anesthesia provider for about 900 people in the camp. We took care of military personnel from all Nations; they included Australians, French, Spanish, Dutch, Koreans, and many others. It was a wonderful experience to see the other cultures and to get to know them.

- **Major Kelley Moore, USAF, NC, CRNA, GSN Class of 1998, Anesthesia Element Chief, McGuire Air Force Base,** deployed to Ganci Air Base, Kyrgyzstan, in support of Operation Enduring Freedom in 2002; currently preparing to deploy to Southwest Asia.

Graduate Profile. As of April 2005, the GSN has 231 uniformed graduates who have received the Master of Science in Nursing (MSN) Degree *in residence*: Army - 68 (which includes seven Post-Master Graduates); Navy - 19; Air Force - 129; and, Public Health Service - 15. One hundred and three uniformed officers have graduated as Family Nurse Practitioners; 121 uniformed officers have graduated in Nurse Anesthesia; and seven from the Post-Master Family Nurse Practitioner Certificate option. As of April 2005, well over 80 percent of the GSN graduates remain on active duty in their individual Services. The GSN alumni do not have a formal residency requirement so they go directly into clinical practice, consistent with the credentialing guidelines at the individual health care facilities. The GSN alumni can expect to serve at least one tour as practitioners or anesthetists before being considered for assignments in any other role. The GSN alumni have three career tracks: clinical, administrative, and research. There are a number of "nontraditional" and operational assignments available as well; only a limited number of alumni would be expected to pursue those assignments. New avenues for command and staff positions are continuously opening for advanced practice nurses. It is expected that the GSN alumni will continue to be recognized and rewarded for their outstanding performance with career assignments of ever-increasing responsibility.

GSN Alumni Receive Outstanding Results on National Certification Examinations. The immediate measurable standard of success for GSN alumni is the passing of the National Certification Examinations. Over 97 percent of the GSN graduates have passed the National Certification Examinations at the upper percentile, on their initial examination. ***For example, credentialing scoring information released on February 26, 2002, by the American Nurse Credentialing Center's Commission on Certification shows that of the 15 GSN Family Nurse Practitioner graduates who took the certification examination, all 15 passed with a mean score of 123.3, the highest ever achieved. During 2003, all 10 GSN Nurse Anesthesia graduates passed the Council on Certification of Nurse Anesthetists Certification Examination on the first attempt, with seven of the ten earning perfect scores of 600; and, in 2004, nine out of 13 Nurse Anesthesia graduates received perfect scores on their Certification Examinations with all 13 passing on their first attempt***.

The GSN Uses a Systematic Approach for the Evaluation of Students, Alumni, and Supervisors. The GSN Master Plan for Program Evaluation outlines structure, processes, and outcomes associated with the GSN's evaluation approach, and identifies the focus of the evaluation, the individuals responsible for conducting the evaluation, the reporting chain, and the method and frequency of the evaluation. The overall responsibility for implementing the evaluation plan resides with the GSN Research and Evaluation

Committee. All GSN faculty participate in the acquisition, interpretation, and application of the resulting data; and, the committee has a central focus geared to the outcomes of the GSN, both short and long range. The Evaluation Program Administrator is responsible for administering the didactic evaluation program to include maintaining the databases, posting the course evaluations, downloading and evaluating the data, and disseminating the data to the Research and Evaluation Committee, Program Directors, and Department Chairs, as appropriate, for final action. Faculty within the GSN make curricular modifications and course changes incorporating student comments and suggestions. Major changes are referred to the GSN Curriculum Committee for oversight and approval. After changes are implemented, courses are conducted and evaluated again. The evaluation process is on-going as courses continually improve and students graduate with ever-enhanced preparation.

The GSN Designs, Revises, and Implements Evolving Tools for the Effective Measurement of Alumni Performance. Members of the Research and Evaluation Committee and faculty representatives from the Family Nurse Practitioner, Nurse Anesthesia, Perioperative Clinical Nurse Specialist, and Doctoral Programs design and implement tools to effectively measure alumni performance and to provide related reports to the GSN Dean and the Federal Nursing Chiefs. These assessment activities resulted in the publication of the GSN Evaluation Manual, in November of 2000, and are currently guiding the revision and update of the manual and evaluation tools, policies, and procedures. As national program standards and the GSN program objectives evolve, the GSN's outcome data collection tools and methods also change in order to collect data consistent with current standards and objectives. More extensive tracking is now possible among respondents to the surveys for graduates, alumni, and employers. In addition to rating performance levels for terminal objectives, graduating students, employers, and alumni are also asked to rate their level of satisfaction with other aspects of the GSN's programs and curricula. Accomplishments and employment following graduation are tracked through the one-year and three-year alumni surveys. End-of-program, alumni, and employer evaluation data, along with course evaluation data, are tabulated by the Evaluation Program Administrator and forwarded to the Research and Evaluation Committee for tracking and trending as well as to the Dean, Program Directors, and Department Chairs. Reviews of these reports by the GSN and the Federal Nursing Chiefs ensure that the GSN curricula meet the requirements of the Uniformed Services.

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USU GSN Graduates Hold Leadership Roles and Earn Special Recognition throughout the Uniformed Services - Selected Examples from the USU GSN Alumni.

"Deployed heroes don't have family members kiss them before they roll into the operating room or sit by their beds and listen. But we are there to talk to them; make sure they know someone cares. In the truest sense of the word, we are their family."

- **Major Susan Perry, CRNA, USAF, NC, GSN Class of 1998, Nurse Anesthesia,** Eifel Times, *Nurse Finds Peace While Tending Heroes*, Spangdahlem Air Base, Germany, January 23, 2004.

GSN Class of 1996.

Major Janet Bourne, USAF, NC, GSN Class of 1996, Family Nurse Practitioner, is serving as the Officer-in-Charge of the Student Health Clinic, 82nd Medical Operations Squadron, Sheppard Air Force Base, Texas. Major Bourne is a graduate of the Family Nurse Practitioner option in the GSN MSN Program.

Lieutenant Colonel Michele Levy, USAF, NC, GSN Class of 1996, Family Nurse Practitioner, is scheduled for assignment at the GSN to serve as a faculty member in the Family Nurse Practitioner Program in 2005.

Lieutenant Colonel Kelley Moore, CRNA, USAF, NC, GSN Class of 1996, Nurse Anesthesia, deployed in the Spring of 2003 to Southwest Asia in support of Operation Iraqi Freedom.

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GSN Class of 1997.

Major Adrienne Burnette Hartgerink, CRNA, USAF, NC, GSN Class of 1997, Nurse Anesthesia, was the author of an article featured in the Richmond Times-Dispatch in January of 2004; the article highlighted the role of the military Certified Registered Nurse Anesthetist. Major Hartgerink was deployed in support of Operation Enduring Freedom during 2002; in her article, she explained what it meant to her to serve her country in the unique and positive role of a military Certified Registered Nurse Anesthetist. Major Hartgerink served as the anesthesia component of a Small Portable Expeditionary Aeromedical Rapid Response (SPEARR) Team that was deployed to the Republic of the Philippines in support of Operation Enduring Freedom. Her experiences provide insight into the austere and often dangerous environments in which medical professionals must work during the continuing war on terrorism. Major Hartgerink joined the GSN as a faculty member in the Nurse Anesthesia Program, in 2004.

Lieutenant Colonel Nancy Heisterman, USAF, NC, GSN Class of 1997, Family Nurse Practitioner, left her position as Chief of Utilization Review at the David Grant Medical Center, Travis Air Force Base, California, to start a new Nurse Transition Program at Nellis Air Force Base, Nevada. The new program is part of the hospital's professional education department.

Major David Stamps, USAF, NC, CRNA, GSN Class of 1997, Nurse Anesthesia, was recognized for his expertise in casualty anesthesia care by being named to the faculty of the Expeditionary Medical Support (EMEDS) Course, USAF School of Aerospace Medicine, Brooks City-Base, Texas. The EMEDS Course is the state-of-the-art Air Force casualty care course that is attended by all deployed Air Force Medical Service personnel.

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GSN Class of 1998.

Major Rhonda Adler, USAF, NC, GSN Class of 1998, Family Nurse Practitioner, separated from the Air Force and her position as Element Chief of the Family Practice Clinic, 31st Medical Operations Squadron, Aviano Air Base, Italy, in July of 2004.

Lieutenant Commander Bradley Hartgerink, NC, USN, CRNA, GSN Class of 1998, Nurse Anesthesia, was deployed on the Hospital Ship *Comfort,* during 2003, in support of Operation Iraqi Freedom. While on the *Comfort*, Lieutenant Commander Hartgerink performed many anesthetics on both Iraqi prisoners and Coalition forces.

Colonel Bridget Larew, USAF, NC, GSN Class of 1998, Family Nurse Practitioner, moved from her previous position as the Medical Services Flight Commander at Bolling Air Force Base, Washington, D.C., in the Fall of 2004; she is currently drafting and implementing AE Policy at the Pentagon.

Lieutenant Colonel Terry McManus, USAF, NC, GSN Class of 1998, Family Nurse Practitioner, is currently serving as Element Leader in the Family Nurse Practitioner Clinic at Ramstein Air Force Base, Germany.

Major Susan Perry, CRNA, USAF, NC, GSN Class of 1998, Nurse Anesthesia, was deployed in the Winter of 2003 to Southwest Asia in support of Operation Iraqi Freedom where she successfully administered many anesthetics to critically wounded casualties under austere field conditions.

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GSN Class of 1999.

Captain Wendy Aronson, CRNA, USAF, NC, GSN Class of 1999, Nurse Anesthesia, was deployed in 2002 to Southwest Asia from Elemendorf Air Force Base. Setting up operations at an austere location, Captain Aronson pioneered the modification of EMEDS supplies resulting in significant savings of compressed oxygen, a rare commodity in an austere environment. Her efforts led to Air Force-wide recognition; and, as a result, she was appointed to the prestigious TriService Joint Readiness Clinical Advisory Board (JRCAB) at Fort Detrick, Maryland.

Major Alison (Solberg) Beach, USAF, NC, CRNA, GSN Class of 1999, Nurse Anesthesia, was deployed as the sole anesthesia provider at a classified location from February to April of 2003. Her deployment was in support of Operation Iraqi Freedom.

Major Jack M. Davis, AN, USA, GSN Class of 1999, Family Nurse Practitioner, was deployed as the Brigade Surgeon for the 17th Field Artillery Brigade in Balad, Iraq, in April of 2003; he is now serving at the Brook Army Medical Center in San Antonio, Texas.

Captain Heather Moledor (Johnson), USAF, NC, GSN Class of 1999, Family Nurse Practitioner, is currently serving as a Family Nurse Practitioner at Ramstein Air Base, Germany.

Major Brian Todd, CRNA, USAF, NC, GSN Class of 1999, Nurse Anesthesia, was deployed during 2002 to Southwest Asia, to include service in Oman. An expert in field equipment, he was one of the first USAF CRNAs to use specialized anesthesia equipment in an austere environment. Due to his expertise, he was named to the prestigious TriService Joint Readiness Clinical Advisory Board (JRCAB) at Fort Detrick, Maryland. The JRCAB establishes equipment policy for the Services. Major Todd also serves as a staff CRNA at the United States Air Force Academy, Colorado.

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GSN Class of 2000.

Major Julie Bosch, USAF, NC, GSN Class of 2000, Nurse Anesthesia, was deployed on a humanitarian mission for two weeks to Guatemala in June of 2002, where her clinical caseload was over 8,000 people. Major Bosch was relocated to Charleston Air Force Base, South Carolina, in June of 2003. Major Bosch has been accepted as a USAF Ph.D. candidate in the GSN Doctoral Program matriculating in 2005.

Captain Brian Estavillo, CRNA, USAF, NC, GSN Class of 2000, Nurse Anesthesia, was deployed to Southwest Asia during 2002. Captain Estavillo was with the Air Force Special Operations Command; he is currently a staff CRNA at Travis Air Force Base, California.

Captain Sandy McNaughton, AN, USA, GSN Class of 2000, Family Nurse Practitioner, will be returning to USU in June of 2005 as a faculty member in the GSN Nurse Practitioner option of the MSN Program.

Major Jim Sall, AN, USA, GSN Class of 2000, Family Nurse Practitioner, was accepted into the Ph.D. Program in Higher Education Administration at the University of Kansas, in mid-December of 2004. At the same time, he was named Chief of the Primary Care Clinic at Fort Leavenworth, which has 17 providers, the USDB (prison) Clinic, which has two providers, and a third satellite clinic in South Kansas City, with two additional providers. The providers include physicians, nurse practitioners, and physician assistants.

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GSN Class of 2001.

Captain Jen-Jen Chen, USAF, NC, GSN Class of 2001, Family Nurse Practitioner, was deployed to Tallil Air Base, Iraq, on November 13, 2003; he served there until mid-March of 2004.

Captain Virginia Johnson, CRNA, USAF, NC, GSN Class of 2001, Nurse Anesthesia, was deployed to Cyprus in the Spring of 2003, in support of Operation Iraqi Freedom. She successfully administered over seventy anesthetics.

Captain Geoffrey Kuzmich, CRNA, USAF, NC, GSN Class of 2001, Nurse Anesthesia, was deployed for six months to Yemen, Djibouti, and Qatar in support of Operation Iraqi Freedom. Captain Kuzmich successfully performed many anesthetics, including cases on critically wounded pediatric casualties in austere conditions. He was also selected as the Director, Anesthesia Services, for the Air Force Center for Sustainment of Trauma and Readiness Skills (C-STARS) at the University of Maryland R. Adams Crowley Shock Trauma Center in Baltimore, Maryland. Selected for his superb teaching skills and trauma anesthesia expertise, Captain Kuzmich replaced **Captain John Killpack, CRNA, USAF, NC, GSN Class of 1999.** Captain Killpack was the founding Anesthesia Services Director at C-STARS.

Captain Mikel Phillips, CRNA, USAF, NC, GSN Class of 2001, Nurse Anesthesia, was deployed from Wright-Patterson Air Force Base, Ohio, to Southwest Asia in January of 2003. Captain Phillips was lauded by his superiors for performing in a superior fashion under austere field conditions.

Captain Cherri Shireman, USAF, NC, Class of 2001, Family Nurse Practitioner, was selected by the Air Force Institute of Technology to return to school for a Ph.D. in Nursing. Captain Shireman began the Doctoral Program at the USU GSN in the Fall of 2004.

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Class of 2002.

Captain Curtis Aberle, AN, USA, GSN Class of 2002, Family Nurse Practitioner, serves as the Officer-in-Charge at the United States Army Health Clinic, Camp Bullis, in San Antonio, Texas.

Captain Toney Banks, USAF, NC, GSN Class of 2002, Nurse Anesthesia, is assigned to the 81st Medical Group, Keesler Air Force Base, Mississippi.

Captain Patricia F. Coburn, USAF, NC, GSN Class of 2002, Family Nurse Practitioner, returned from one year in Iraq; she departed just prior to the start of the war and was deployed for Operation Iraqi Freedom and Operation Enduring Freedom. She lost both of her grandparents, six months apart, during her one year deployment. Captain Coburn was part of a group that published an article in the *ANC Newsletter*, in 2004, where she stated the following: "Couldn't have chosen a better profession... Sincerely love my job and there is not a day that goes by where I'm not given an opportunity to help educate soldiers on health care issues."

Major Denise Lyons, AN, USA, GSN Class of 2002, Family Nurse Practitioner, is stationed at the Kimbrough Ambulatory Care Center, at Fort Meade, Maryland. She is also a member of the medical team for the Joint Alternate Communications Center.

Captain Angelo Moore, AN, USA, GSN Class of 2002, Family Nurse Practitioner, is currently stationed at the Landstuhl Regional Medical Center working as a Family Nurse Practitioner in the Family Practice Clinic. His other duties include Call for the Family Practice Clinic, Emergency Department, and Triage Officer for the Deployed Warrior Medical Management Center. He triages soldiers evacuated to the Landstuhl Regional Medical Center from Iraq, Kuwait, Afghanistan, and Africa and also backfills at other Army Health Clinics throughout Europe for providers who have been deployed. For example, he was in Italy in March of 2004 to conduct Post-Deployment processing and health screenings for units returning from Iraq. Captain Moore presented his thesis results with **Lieutenant Commander Gerald**

Boyle at the 2002 Meeting of the Association of Military Surgeons of the United States. In addition, he conducted a podium presentation at the 2003 American Academy of Nurse Practitioners Conference, in California. Captain Moore also published an article entitled *Health Practices of Male Department of Defense Health Care Beneficiaries: A Follow-Up on Prostate Cancer Screening in the National Capital Area* in the December 2003 issue of Military Medicine.

Captain Michael Neal, CRNA, AN, USA, GSN Class of 2002, Nurse Anesthesia, was deployed, just months after his graduation, to Southwest Asia during the Winter of 2003, in support of Operation Iraqi Freedom. Captain Neal was deployed to a busy Army Combat Support Hospital and successfully administered countless anesthetics to Coalition Forces, prisoners of war, and civilian casualties.

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Class of 2003

Captain Ilse Alumbaugh, AN, USA, GSN Class of 2003, Family Nurse Practitioner, is assigned to the United States Army Health Clinic at Schofield Barracks, Hawaii.

Captain Robert L. Herrold, AN, USA, GSN Class of 2003, Family Nurse Practitioner, was deployed to Iraq in support of Operation Iraqi Freedom. He is now serving in the United States.

Captain Eric Lange, AN, USA, GSN Class of 2003, Nurse Anesthesia, was part of a multi-disciplinary humanitarian team deployed to Honduras in February of 2003. Under the direction of **Lieutenant Colonel Jackie Stark, Walter Reed Army Medical Center (WRAMC) Nurse Anesthesia Clinical Site Director,** Captain Lange participated in a United States Southern Command, Humanitarian and Civic Assistance, Medical Readiness and Training Exercise. He was part of a WRAMC team that went to the Leonardo Martinez V. Hospital, an austere Ministry of Health hospital, located in San Pedro Sula, Honduras (a large industrial city located in the northwest corner of Honduras). The daily operations were similar to field conditions within a fixed facility. The team consisted of four surgeons, three anesthesia providers, two nurses, three surgical technicians, and one audiologist. The mission focus was exclusively the surgical treatment of chronic ear disease and fitting patients who received operations during previous missions with hearing aids to correct their acquired maximal conductive hearing loss. Under Lieutenant Colonel Stark's supervision, Captain Lange performed over twenty general anesthetics using the same anesthesia equipment that is currently being used in Iraq. Captain Lange commented: "What better experience to prepare a student for deployment... It was an awesome experience, both from a caring and from an educational perspective."

Captain Ann M. Nayback, AN, USA, GSN Class of 2003, Family Nurse Practitioner, is currently deployed to Iraq in support of Operation Iraqi Freedom.

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FACULTY

Composition. During 2004, the Graduate School of Nursing, as reported in the November 15, 2004 Faculty Listings Update, had 24 full-time faculty: thirteen civilians and eleven uniformed officers; and, two part-time civilian faculty. In addition, 71 off-campus/adjunct faculty (34 civilians and 37 uniformed officers) assisted in the programs of the GSN.

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The GSN Faculty Develops a Signature Curriculum. To support the GSN mission and address changing societal and health care needs, the GSN implemented a signature curriculum developed at the USU GSN Quarterly Retreat in August of 2002. The new curriculum is designed to support practice, research, and educational experiences relevant to medical readiness, the MHS, the USPHS, and other Federal Health Systems. The GSN curriculum is positioned to prepare nurse scientists and leaders at the graduate level, with an emphasis on the Nation's Uniformed Health Systems. The signature curriculum has three focused research and practice areas: *Operational Readiness in Changing Environments*; *Population Health and Outcomes*; and, *Clinical Decision-Making in the MHS, USPHS, and other Federal Health Systems*, with cross-cutting emphasis on patient safety, ethics, force protection, and international health.

Operational Readiness in Changing Environments.

Specific learning experiences related to operational readiness in the GSN core curriculum courses for all three programs are as follows:

Throughout the *Advanced Health Assessment Course*, operational readiness issues are addressed related to each body system. Basic principles of health assessment (percussion, auscultation, and palpation) are emphasized as is the fact that the student may be assigned in a remote location without the availability of advanced assessment technology. Techniques are introduced for performing assessments when the provider or patient is in nuclear/biological/chemical gear and for dealing with the cultural differences of patients of other nationalities. To help students transition into the role of the Advanced Practice Nurse (APN) in the military setting, the *Leadership Role in Interdisciplinary Health Care Course* discusses the experiences of recent graduates who have deployed on humanitarian and wartime missions. The *Ethics and Policy in Federal Health Systems Course* introduces students to ethical and health care policy issues in Federal and military practice. The course examines relationships among social, cultural, political, financial, clinical, and legal factors that influence health care delivery and public policy in the Federal health care systems and in contingency operations. Although nothing about pharmacology is unique to a field setting, the *Applied Pharmacology for the APN Course* emphasizes drugs that military APNs would be likely to frequently use and practical pharmacology including alternative agents to consider if a primary agent is unavailable in a field environment. The *Applied Pathophysiology for Advanced Nursing Practice Course* provides the students with in-depth presentations of those aspects of pathophysiology that are relevant to advanced practice nursing. The changes in physiological parameters occurring during the disease process are presented along with clinical correlations. An emphasis is placed on clinical cases that reflect military medical theaters of operations and on specific

organ system response to battlefield injuries. Medical conditions that occur in both military treatment facility care and field medicine include shock and hemostasis, infectious diseases, pneumonia, diarrhea and hematologic disorders. The *Leadership and Management in a Global Environment Course* discusses principles of leadership, collaboration, conflict management, negotiation and power related to the role of the APN within austere environments.

Six two-hour *Operational Readiness Seminars* are interwoven with the first year of the GSN program. These seminars teach the military unique skills and information necessary to support the mission during deployments. Some of the topics covered include the National Response Plan, the National Disaster Medical System, national security and military strategy, nursing perspectives on medical evacuation, pain management, provider combat stress, and lessons learned from deployment.

- **USU Board of Regents,** Report to the Secretary of Defense, *Graduate School of Nursing Curriculum*, June 22, 2005, pages 11-12.

Graduates from the University often deploy to, and provide care in support of, geopolitical events including war, national and man-made disasters, peacekeeping missions, and humanitarian assistance. The ability to function effectively is dependent on the flexibility to adapt to changes in climate, culture, and mission. The operational readiness pillar of the GSN provides the necessary framework to prepare students to manage clinical, administrative and leadership demands specific to the mission during deployment.

Population Health and Outcomes. Population health refers to an approach to improve the health of a population and to reduce health inequities among population groups. The objective of population health is to examine and take action on a broad range of factors and conditions that influence health. The population health approach recognizes that health is a capacity or resource rather than a state, a definition, which corresponds more to the idea of being able to pursue one's goals, to acquire skills and education, and to grow. The broader notion of health recognizes the range of social, economic and physical environmental factors that contribute to health; the clear articulation of this concept of health is *the capacity of people to adapt to, respond to, or control life's challenges and changes*. Outcome evaluation is essential in a population health approach. It examines long-term changes in both health and the determinants of health. These include changes in knowledge, awareness and behavior, shifts in social, economic and environmental conditions, as well as changes in public policy and health infrastructure. Outcome evaluation seeks to measure reduction in health status inequities between population sub-groups. Longer-term outcome evaluation is essential for a comprehensive evaluation program, which also includes process evaluation (to determine whether a policy or program is meeting its goal and reaching its target population) and impact evaluation (to determine the affects of a program on the health of a population).

Clinical Decision-Making in the MHS, USPHS, and other Federal Health Systems. In the MHS, USPHS, and other Federal Health Systems, clinical decision-making includes the coordination of patient care services across the Nation to optimize the delivery of health care to recipients. Ensuring seamless care across the health care continuum requires a unique understanding of health issues and the complexity of integrating the services of the largest health care systems within the United States (the MHS and VA Medical Systems). The GSN curricula provide uniformed students with a framework to effectively function both clinically and administratively in the MHS, USPHS, and other Federal Health Systems.

Three Categories of Courses. Regardless of program specialty, all GSN students will graduate with an advanced understanding of Operational Readiness, Population Health and Outcomes, and Clinical Decision-Making in the MHS, USPHS, and other Federal Health Systems. Cross-cutting emphasis will be placed on concepts related to *leadership*; *national and international political, cultural and environmental health care factors*; *safety*; and, *research*. At each nexus point (i.e., leadership and operational readiness; leadership and clinical decision-making; and, leadership and population health and outcomes) the content will be tailored to the level of the student. For example, when leadership and operational readiness concepts are first introduced, they will be offered at Level 1, forming a foundational knowledge base. Level 2 concepts will then be introduced, forming a more complex understanding of leadership and operational readiness; and, finally, highly advanced (Level 3) concepts will be introduced. Uniformed students will emerge from the GSN programs and return to the Uniformed Services workforce with a unique and highly complex understanding of: Operational Readiness; Population Health and Outcomes; and, Clinical Decision-Making in the MHS, USPHS, and other Federal Health Systems.

The process of integrating the GSN signature curriculum was made more complex with the concurrent addition of the MSN Degree in the Clinical Nurse Specialist track. Because the role of the clinical nurse specialist is different from the roles of the family nurse practitioner and the nurse anesthetist, the GSN had to reconsider the focus and content of many of its existing core courses. Clinical nurse specialists differ in that their role is broader, spanning from the individual patient to the hospital system. Thus, the new GSN curriculum focuses on systems and population health *in addition to* the traditional care of the individual patient.

In order to address this new focus, the GSN curriculum task force first reviewed the AACN *Essentials of Master's Nursing Education* criterion. The following definitions were taken directly from the AACN *Essentials* document and have been adopted by the GSN as framing definitions for the three categories of courses taught within the GSN.

Graduate Nursing Core: Foundational curriculum content deemed essential for all students who pursue a Master of Science in Nursing Degree, regardless of specialty or functional focus, is considered the Graduate Nursing Core. The Graduate Nursing Core Courses include the following: Role, Role/Ethics/ Public Policy, Research, and Healthcare in a Global Environment.

Advanced Practice Nursing Core: Essential content for providing direct patient/client services at an advanced level will be considered the Advanced Practice Nursing Core. The Advanced Practice Nursing Core Courses will include Health Assessment, Anatomy/Physiology, Pathophysiology, and Pharmacology.

Specialty Curriculum Content: Those clinical and didactic learning experiences identified and defined as essential by the specialty nursing organizations will be considered the Specialty Curriculum Content.

Using these criteria as a framework, all of the GSN courses currently being taught were critically examined. The GSN faculty determined that all master-prepared students should complete the courses identified within the Graduate Nursing Core. And, because the GSN graduates must be able to provide direct patient care in the MHS and USPHS, all GSN students are also required to take the courses identified

within the Advanced Practice Nursing Core.

Over the past two years, all GSN (core and specialty) courses have been carefully reviewed, and revised as appropriate, in order to integrate the new GSN curriculum. The GSN faculty, in coordination with the Federal Nursing Chiefs, gradually transitioned into providing the new core curriculum rather than implementing all of the required changes at once. The new GSN curriculum was put in place during the Summer of 2004; the December 23, 2004 iteration of the Signature Curriculum, Structures and Sub-concepts follows.

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Graduate School of Nursing

Uniformed Services University of the Health Sciences

Signature Curriculum
Structure and Sub-concepts

	Operational Readiness In The Changing Environment	**Clinical Decision Making In The Federal Health Care Delivery System**	**Population Health And Outcomes**
Safety	• Force Health Protection • Force Health in WMD • Patient Safety in Austere Environments • Standards of Care • Self care of the Force	• Patient Safety • Workforce Safety • Standards of Practice • Error Reduction	• Population Risk Identification and Cost Effective Interventions • Reduction of Costly Errors Without □ Outcomes • Targeting Populations at Risk
Global/ Environmental, Cultural, political	• Austere Environment/ Survey • Host Nation Issues • Preparation for Global War on Terrorism • Ethics in Host Nations • Policy Issues	• Ethics and Global Health • Care of Culturally Diverse Populations • Federal Health Care Policy Development • Autonomous Practice	• Culturally Unique Health Problems • TRICARE Policy • Medicare • Families Across the Life Span • Economics and Cost
Evidenced Based Practice/ Research	• Infectious Disease Management (WMD) • Functioning in Protective Gear • Women's Health and Deployment	• Health Promotion/ Disease Prevention • Patient Safety • Research to Inform Practice • Basic Science	• Designing and Testing Standards of Practice to Achieve Population Health Outcomes • Disease and Chronic Problem Management • Life Span Care • Health Economics • Quality of Life Issues • Research Process • Health Promotion • Ethics
Leadership/ Support	• Integration with Federal Agencies/NGOs • Supply/resource Management • Multi-disciplinary Collaboration with Communities for Homeland Security	• Interdisciplinary Collaborative Practice • Supply/resource Management • Professional Role/ Consultant • Professional Military Role • Communication Skills	• Policy Analysis and Resource Management • Leadership in Homeland Security for Populations at Risk • Public Health and Epidemiology Competence • Communication
Impact of Technology	• Resource Identification • Exploration of Advantages and Disadvantages for Use • Limitations • Ethical Issues related to Use • Role Development	• Facilitation of Decision Making • Distance Technology for Education and Training • Telemedicine/ Telehealth	• Improving Outcomes • New Methods for Statistical Analysis and Data Management • Privacy Concerns/Issues

Department Structure: Background and History.

A New Structure. Prior to 2003, programmatic and faculty development responsibilities belonged to the FNP and CRNA Program Directors. This structure limited the GSN's ability to respond rapidly to programmatic changes; and, faculty needs were subordinate to curriculum and student requirements. The GSN has transitioned to a structure where the functions of the programs and faculty development needs are separate. During the 2002/2003 Academic Year, a Faculty Structure Task Force (FSTF) was formed; in December of 2002, the FSTF submitted the following guidelines:

1) Establish two departments. The FSTF determined that two departments would best meet the needs of the GSN, adding a third department as the GSN grows;

2) Ensure equity of faculty across the two Departments. Each department should receive an equivalent number of researchers, clinicians, uniformed officers, and civilian faculty; and,

3) Designate Department Chair responsibilities to include: supporting faculty promotion and career progression goals (*focus faculty efforts on meeting/exceeding CAPT promotion criterion*); ensuring workload equity; facilitating faculty research; supporting orientation and mentoring of new faculty; monitoring and reporting on faculty input; producing an annual report to include: clinical practice hours; committee service; and, community service.

Implementation of the new structure began in August of 2003; the first Department meetings were held in October of 2003.

Research Topic Clusters by Department.

Health Systems, Risk, and Contingency Management

-Outcomes-oriented research based on systems intervention(s);
-Risk anticipation and management;
-Cultural/geopolitical assessment for education/training;
-Provider functioning in austere environments;
-Infectious Disease Surveillance;
-Public health in global terrorism;
-Mission-oriented protective posture gear research;
-Patient safety systems interventions;
-Interdisciplinary management of bioterrorism situations at home and abroad;
-Population health management;
-Health education for operational readiness in a global terrorism environment; and,
-Technology in health systems.

Health, Injury, Disease Management

-Outcomes-oriented research based on individualized interventions;
-Outcomes-driven clinical interventions for disease management of populations;
-Processes of care and intervention research;
-Prevention and health promotion;
-Force health protection/screening;
-Culturally competent care assessment;
-Individualized health care outcomes;
-Care of individuals in austere settings;
-Health/safety/readiness of personnel and families;
-Individual management in terrorism;
-Using technology for individual health care interventions; and,
-Risk Assessment and screening.

Department Faculty. Diversity of faculty across the two Departments was an overarching goal when the department structure was instituted. Current structure reflects that diversity and equity of faculty assignment across the two Departments has been accomplished.

Scholarship of Teaching. All faculty in the two Departments teach across programs at both the masters and/or doctoral levels, with the majority of the faculty serving as course coordinators during all three semesters (Fall, Spring, Summer). Two faculty from each Department serve as Program Directors.

Scholarship of Practice. The five faculty members in each Department practice approximately one half to one full day each week in military treatment facilities within the National Capital Region. This voluntary service contributes to USU's generation of cost avoidance for the DoD, while maintaining the faculty's clinical skills.

Scholarship of Research. Twelve faculty members are currently involved in active research projects.

Scholarship of Publication/Presentation. Dissemination of knowledge relevant to clinical practice, including relevant research, continues to be a goal of the GSN faculty. During 2004, approximately 16 articles were either accepted for publication or were published. In addition, the majority of the faculty provided poster or podium presentations at regional, national, or international conferences. (*Examples of publications and presentations during 2004 are provided at Appendix C.*)

Scholarship of Service. The GSN faculty is well represented across the GSN and USU committees. Two GSN faculty members were appointed to the USU Presidential Search; one GSN faculty member chairs a USU committee; and, one is a member of the USU Faculty Senate.

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GSN Faculty Members Are Recognized for Integration of Technology Throughout the GSN Curricula. Since its inception, the GSN has actively participated in educational and research activities at the National Capital Area Medical Simulation Center (SIMCEN). Over the past five years, the GSN faculty has collaborated with the SIMCEN faculty and staff to enhance the GSN programs through: the development of clinical cases utilizing the SIMCEN technology; presentations of the use of SIMCEN technology in education at the national level; and, SIMCEN-related research activities. This active participation has been widely recognized; for example, the Dean of the GSN and the GSN faculty were invited to participate in high-level strategic planning sessions, during 2003, as the University reviewed its use of resources and support for the SIMCEN. In addition, the GSN was invited to present its SIMCEN-related technology initiatives for both its curriculum and research to the Centre for Medical Education located at the University of Dundee, Scotland (the Centre's leader, Doctor Ron Harden, is recognized as an expert in international medical simulation). In December of 2002, GSN faculty were invited to meet at the SIMCEN with members of the University of Michigan Consortium to discuss collaborative activities and possibilities for the future forging of technology/SIMCEN links among the disciplines of medicine, nursing, veterinary science, and dentistry. As noted in 2002, by the Evaluation Team from the Commission on Collegiate Nursing Education:

> **A state-of-the-art simulation center is available to the GSN and is equipped with 12 fully equipped patient treatment rooms with computer, video, and audio equipment. In addition, the simulation center has a distance education teleconference room, a computer laboratory, and an operating room simulation laboratory with manikin simulators and anesthesia equipment, which mimics that used in the military field. Virtual reality anatomy lectures are cutting edge and are available for approximately four anatomic systems. GSN students interviewed verbalized knowledge of the many resources available to them on campus and had overwhelmingly positive comments about the laboratories, libraries, simulation center, and virtual reality programs available to them for study.**

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The Establishment of a University Distant Education Policy. On November 6, 2001, following extensive coordination, the USU President approved a comprehensive Distant Education Policy, PPM-004-2001, for the University. The guidelines provided in the policy apply to courses and activities initially designed in the distance learning format as well as to courses and activities in which the method of delivery has changed significantly from that approved in the original curriculum proposal. The courses in distance learning may be either certificate courses or in conjunction with degree granting programs. Any department or faculty group offering distance education courses is expected to meet the recommendations of the Middle States Association of Colleges and Schools and five other accrediting groups for Distance Education Programs, dated March 23, 2001, and be guided by policies established by the USU. The text of these guidelines is made available at <*http://www.wiche.edu/telecom/Article1.htm*> by the Chronicle of Higher Education. The current USU Distant Education Policy includes basic education principles, guidelines on the implementation of those principles, and identification of the responsibilities of all who are involved in distance education at the University.

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Blackboard Acquisition.

The acquisition of a web-based *learning platform* was a significant milestone in the history of the GSN. From the very first discussions reference the establishment of a Doctoral Program at the GSN, it was envisioned that the program would be heavily web-supported. Students applying and being accepted to the GSN Doctoral Program are a unique group of Federal Nurses. As a cohort, they are senior-ranking uniformed officers (0-4 and higher) with demanding positions in their health care systems. Those students choosing the part-time option understand that they are making a five-year commitment to the GSN and their graduate studies. Over that five-year span, the GSN anticipates that many of its part-time students will be transferred out of the National Capital Region; and, they will require consistent communication with the GSN via technology. From the inception of the Doctoral Program, the GSN has been actively working toward the acquisition of a robust, web-based distance learning platform. As a major component, the platform has to support interaction between faculty and students; it can not simply serve as an archival site for the storage of documents. Following a competitive procurement process, the GSN acquired the ***Blackboard Learning Platform***.

Initial faculty, staff and administrative training was conducted on January 12 and 13, 2004. By June of 2004, the first doctoral course was web-enhanced and pilot-testing within the masters curriculum began. By the Summer of 2005, it is anticipated that all of the doctoral courses and many of the masters-level courses will be web-enhanced. Careful attention is being paid to the standardization of the *look and feel* elements of the portal and class interfaces so that students can quickly and easily navigate through the system, following their orientation with the Blackboard platform. Tutorials for both faculty and students are under development; and, on-going administrative training is underway.

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Leadership of the GSN.

Faye Glenn Abdellah, Ed.D., Sc.D., RN, FAAN, Professor and Founding Dean Emerita. The Founding Dean of the Graduate School of Nursing, **Doctor Faye Glenn Abdellah,** has long been recognized as a national pioneer in nursing, nursing research, long-term care policy, mental retardation, the developmentally disabled, home health services, aging, hospice and AIDS. She has been the recipient of 12 honorary degrees, over 90 major awards, authored or co-authored more than 152 publications, and authored six books, some translated into six languages, which have altered nursing theory and practice. Prior to assuming the post of Founding Dean, Rear Admiral Abdellah (0-8), United States Public Health Service, served as the Chief Nurse Officer and Deputy Surgeon General of the United States from 1981 until her retirement in 1989 (for more detail on Dean Abdellah's accomplishments, see Section I of the USU Journal, *USU Honorary Degrees* and the *University Medal*). On May 31, 2002, Dean Abdellah celebrated her retirement from USU with distinguished participants including the University President, the Federal Nursing Chiefs, the Commanding Officer of the National Naval Medical Center, a former Surgeon General of the United States, senior Congressional staff, civilian nursing leaders, and over three hundred members of the USU community. Significantly, she also led the GSN in preparing for, and ultimately receiving, full accreditation for the maximum allowable terms from the National League for Nursing Accrediting Commission (NLNAC) and the Commission on Collegiate Nursing Education (CCNE). Before her retirement, she ensured that the preparation for reaccreditation by the American Association of Nurse Anesthetist Council on Nurse Anesthesia (COA) was well on track. Dean Emerita Abdellah submitted

a paper entitled, *Military Nursing Research by Students at the Graduate School of Nursing Uniformed Services University of the Health Sciences* (co-authors: Eugene Levine, Ph.D.; Barbara Sylvia, Ph.D.; Commander Patricia W. Kelly, USN; CAPT Virginia Saba, USPHS (Ret.); and, Samantha Tenenbaum) to Military Medicine; it was subsequently published during 2005.

Patricia A. Hinton Walker, Ph.D., RN, FAAN, Professor and Dean. Following an extensive national search, **Doctor Patricia Hinton Walker** was selected, in June of 2002, to serve as the second Dean of the GSN. Dean Hinton Walker is nationally recognized as a leader in education and has been a strong advocate for health services research, specifically measuring cost and quality outcomes. After serving as the Dean of the Nursing School at the University of Colorado Health Sciences Center, Doctor Hinton Walker was selected as the American Academy of Nurses Senior Scholar in Research at the Agency for Healthcare Research and Quality (AHRQ) where she coordinated the extensive review of funded health sciences research used in determining health policy. During her distinguished career, Dean Hinton Walker served as an Associate Dean at two major research universities; a visiting professor in community based-care; a director of an entrepreneurial community-based practice organization; and, as a consultant on quality and cost-effective outcomes, faculty practice and community-based care, managed care, practice-based research, and organizational development in hospitals and schools of nursing. In addition to her more than 30-year teaching career, she has authored five books on nursing education and practice as well as 49 peer-reviewed professional articles. She has been recognized by the most prestigious organizations in the nursing profession. Her honors and awards include: the Distinguished Alumni of the Year by the University of Kansas Medical Center Nurses Alumni Association (1998); Who's Who in American Nursing (1993); Nurse of the Year for the Mississippi Nurses Association District #13 (1980); Member of the Board of Directors, Friends of the National Institute for Nursing Research, from 1998 to the present; and, recipient of international invitations on educational consultation from the United Kingdom, Hong Kong, Thailand, Japan, Belgium, Poland, Spain, Sweden, and many others. Dean Hinton Walker's expertise in interdisciplinary practice, education, research, and health policy will ensure the continued progress of the GSN. She will continue her involvement in the nursing agenda at the AHRQ as a senior advisor with a focus on quality outcomes. Opportunities for research in the MHS, USPHS, and other Federal Health Systems will be utilized by the new GSN Dean for studying the areas of prevention, health promotion, and patient safety. Dean Hinton Walker understands the potential impact on policy that nursing research can have and will foster this through the development of a doctoral program. A dedicated believer in utilizing internal motivation, Dean Hinton Walker sees educators as people who guide learners toward missions or areas of interest rather than prescribing courses of action. She also advocates for exploring alternative means of learning, such as through the Internet. Following her arrival at the GSN in mid-2002, Dean Hinton Walker has carefully led the GSN faculty and staff through a transition period utilizing new initiatives and concepts to analyze systems, review curriculum, and enhance program development. Dean Hinton Walker's goal is a shared vision of the GSN that is flexible, responsive, and on target with the needs of the Uniformed Services. Her vision is to continue to optimize the strengths and interests of the GSN faculty and staff, to enhance the research infrastructure, to continue the merging of technological advancements into the curriculum, and to support the provision of a flexible curriculum that addresses the educational requirements of the Uniformed Services, while ensuring that the infrastructure sufficiently supports both faculty and students.

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Selected Profiles of Graduate School of Nursing Faculty.

Outstanding Uniformed Faculty Award for the MSN Program. Lieutenant Colonel (P) Bruce Schoneboom, Ph.D., CRNA, USA, Associate Professor, was selected by the GSN masters degree students to receive the Outstanding Uniformed Faculty Award at the May 2004 Graduation. The GSN masters students chose LTC Schoneboom as the uniformed faculty educator who exemplified the highest qualities of a graduate nursing educator by personal example and performance.

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Outstanding Civilian Faculty Award for the MSN Program. Tom Kaufman, Ph.D., was selected by the GSN masters degree students at the last Commandant's Call to receive the Civilian Faculty Award at the May 2004 Graduation. The GSN masters students selected Doctor Kaufman as the civilian faculty educator who displayed the highest qualities of a graduate nursing educator by personal example and performance.

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Outstanding Uniformed Faculty Award for the Doctoral Program. Colonel Martha Turner, USAF, NC, RN, CNAA, Ph.D., was voted "Uniformed Faculty of the Year" by the GSN doctoral students. The GSN doctoral students selected Colonel Turner as the uniformed faculty educator who displayed the highest qualities of a graduate nursing educator by personal example and performance.

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Outstanding Civilian Faculty Award for the Doctoral Program. The doctoral students voted **Linda Yoder, Ph.D., MBA, RN, FAAN, Associate Professor,** "Civilian Faculty of the Year." The GSN doctoral students selected Doctor Yoder as the civilian faculty educator who displayed the highest qualities of a graduate nursing educator by personal example and performance.

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GSN Graduation Marshall for 2004. Lieutenant Colonel Reynold Mosier, MSN, CRNP, USA, Assistant Professor, was selected to serve as the GSN Graduation Marshall during the 2004 Commencement Ceremonies at Constitution Hall.

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2004 Dean's MSN Program Teaching Awards. Lieutenant Colonel (P) Linda Wanzer, MSN, AN, USA, Assistant Professor, was the uniformed officer selected to receive the Dean's MSN Program Teaching Award for 2004; **Diane Seibert, Ph.D., CRNP, Assistant Professor,** was selected to receive the civilian 2004 Dean's MSN Program Teaching Award.

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2004 Dean's Doctoral Program Teaching Awards. Colonel Martha Turner, USAF, NC, RN, CNAA, Ph.D., was the uniformed officer selected to receive the Dean's Doctoral Program Teaching Award for 2004; **Linda Yoder, Ph.D., MBA, RN, FAAN, Associate Professor,** was selected to receive the civilian 2004 Dean's Doctoral Program Teaching Award.

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2004 GSN Faculty Research Awards.

2004 Emerging Investigator Awards. The 2004 Emerging Investigator Awards were presented to **Colonel (s) Paul Austin, USAF, Ph.D., CRNA, Associate Professor,** and **Diane Seibert, Ph.D., CRNP, Assistant Professor**. These awards recognized the uniformed and civilian GSN faculty whose efforts displayed the highest qualities in graduate nursing research.

2004 Faye Glenn Abdellah Faculty Research Award. The Faye Glenn Abdellah Faculty Research Award was presented to Laura Talbot, Ph.D. EdD., RN, CS, Associate Professor.

2004 Clinical Scholar. **Lieutenant Colonel Reynold Mosier, MSN, CRNP, USA, Assistant Professor,** was selected as the GSN 2004 Clinical Scholar.

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GSN Faculty Service Awards.

2004 Interdisciplinary Contribution Awards. **Colonel Charles Serio, USA, USU Brigade Commander,** and **Edmund G. Howe, III, M.D., Professor of Psychiatry,** were selected by the GSN to receive the 2004 Interdisciplinary Contribution Awards.

2004 GSN Faculty Esprit de Corps Award. **Karen Elberson, Ph.D., RN, Associate Professor,** was chosen to receive the 2004 GSN Faculty Esprit de Corps Award.

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New Associate Dean for Academic Systems Selected in 2004. Colonel John S. Murray, USAF, NC, Ph.D., CPNP, CS, FAAN, Professor, was selected by the Dean to serve as the GSN Associate Dean for Academic Systems. He is the first uniformed nurse in the Department of Defense to be appointed as a Professor at USU. Colonel Murray fills a position that had been previously covered by two Acting Associate Deans following the transfer, in January of 2003, of **Colonel Martha Turner, USAF, NC, RN, CNAA, BC, Ph.D., Associate Dean for Academic Systems**; Colonel Turner assumed the leadership position for the International Studies Program in the USU School of Medicine Department of Preventive Medicine and Biometrics. **Patricia C. McMullen, DNSc, JD, CNS, CRNP, Associate Professor,** filled this role in an acting capacity following the departure of Colonel Turner until the Summer of 2003, when she accepted an Associate Dean position at Catholic University. Next, **Karen Elberson, Ph.D., RN, Associate Professor,** served in an acting capacity until the arrival of Colonel Murray. Colonel Murray is highly qualified for the position and will add to the leadership, academic, and research capabilities of the GSN.

Colonel Murray transferred to USU from the Office of the Air Force Surgeon General, where he completed an executive leadership fellowship. He has served as the Consultant to the Surgeon General for Pediatrics and currently serves as the Consultant for Clinical Research. Colonel Murray was recently appointed by the Assistant Secretary of Defense for Health Affairs to serve as the DoD Representative to the National Advisory Council for Research at the National Institutes of Health. He was also just appointed by the Department of State to work with the American Academy of Pediatrics Section on International Child Health to develop a health care delivery plan for children affected by the Tsunami Disaster in South Asia. As an active researcher in the care of siblings of children with cancer and children with chronic illnesses, Colonel Murray is the principal investigator on a Congressionally-funded grant that totals more then $3.2 million; he has been the recipient of a total of $15 million in grant funding. Colonel Murray, who has held office and completed board service in many professional societies, is a Fellow in the American Academy of Nursing, where he has the distinguished honor of being the youngest nurse ever selected. The American Academy of Nursing is comprised of nurse leaders who are at the top of their profession, having accomplished extraordinary milestones in their nursing careers. Colonel Murray has written over 25 peer-reviewed journal articles and two book chapters; he is the author of the book, Cancer Affects Me Too: A Workbook for Siblings of Children with Cancer. As a result, Colonel Murrary is the recipient of the International Association of Pediatric Oncology Nursing Author of the Year Award. He currently serves on the editorial boards of several nursing and research journals. In addition, Colonel Murray is the recipient of numerous national and international awards. In 2004, he received the University of Texas at Austin School of Nursing Outstanding Alumni Award. ***He was recognized by former President Bill Clinton and the International Congress on Pediatrics for his humanitarian work in developing countries.*** He authored the first-ever Pediatric Health Care Delivery Plan for Humanitarian Missions in Developing Countries. And, ***President George W. Bush, along with the National Institute of Child Health and Human Development, recognized Colonel Murray for his childhood cancer research***, which has been replicated in eight countries around the world. ***Colonel Murray was also awarded the United States President's Award for Excellence in Health Care for his work with children following the events of September 11, 2001***.

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New Commandant for the GSN in 2004. Lieutenant Colonel (P) Constance J. Moore, USA, AN, MSN, RNBC, Assistant Professor, was selected by the Dean to serve as the GSN Commandant and Assistant Dean for Student Services. She replaced **Lieutenant Colonel Regina Tellitocci, USA,** who was reassigned to the Walter Reed Army Medical Center in June of 2003, and Major Sherry McAtee, USAF, who served as Interim Commandant until LTC Moore reported for duty in October of 2004. Colonel Moore is highly qualified for the position and will add to the leadership, educational, and military capabilities of

the GSN faculty. LTC Moore served as the Army Nurse Corps Historian at the Center for Military History in Washington, D.C., from 1994-1997. She has held clinical and leadership positions in Army community hospitals, such as: Deputy Psychiatric Nursing Course Director at the Dwight David Eisenhower Army Medical Center, Fort Gordon, Georgia, from 1997-2000; Deputy Chief of Nursing Education and Staff Development at the Walter Reed Army Medical Center from 2000-2002; and, Director of the PNC at the William Beaumont Army Medical Center from 2002-2004. During these assignments, LTC Moore has developed and implemented professional programs that have had significant impact on the clinical skills and professional identification across her nursing corps. She is well known as a clinical expert in Army psychiatric care and has been recognized for her performance during a strategic mobilization assignment caring for Cuban refugees at Guantanamo Bay, Cuba. She also served as a grief counselor at the Pentagon for two months following the attack of September 11, 2001. Highly respected throughout the military community, she provided an astute clinical assessment following a critical incident, which impacted the highest levels of a sister Service. LTC Moore's most enduring professional contributions to the advancement of professional nursing knowledge occur through her extensive research, publications, and presentations on nursing history. Throughout her career, regardless of formal assignments, she has channeled a passionate avocation into a body of knowledge that both inspires and invigorates those with whom she works. As the Army Nurse Corps Historian, she set the standard for excellence through the use of her psychiatric nursing interview skills and her academic mastery of history. Her extensive research endeavors include in-depth oral histories of more than 20 Army nurses. LTC Moore's active involvement in professional and community organizations clearly indicates her commitment to nursing history. She is a long-time member of Sigma Theta Tau, the international honor society for nursing, and the American Psychiatric Nurses Association. LTC Moore served as an officer of the American Association of the History of Nursing from 1989 to 1991. As an active member of the Women in Military Service to America, she serves as the historical consultant for the organization's official programs. LTC Moore has volunteered significant time as a peer assistance counselor for the Texas Board of Nursing to ensure that impaired nurses who are returning to practice receive appropriate support during their reentry. She spends countless hours with senior retired officers, archiving their personal experiences, which will serve as insight and inspiration for future generations. Moreover, she was also selected as one of seven national subject matter experts by the American Nurses Credentialing Center to write test questions for the Nursing Professional Development Credentialing Examination.

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Associate Dean of Faculty Affairs. Karen L. Elberson, Ph.D., RN, Associate Professor, joined USU in July of 2003; she departed from East Carolina University where she had served in a variety of leadership positions (Chair, Adult Health Nursing Department; Director, Information Systems, School of Nursing; Chair, Admissions, Promotion and Tenure Committee; and, Liaison for Research). Prior to her tenure at East Carolina University, she served on the faculty at Emory University, Nell Hodgson Woodruff School of Nursing where she taught Adult Health Critical Care Nursing; she also taught in and served as the Interim Director of the Nursing Service Administration Program. Upon her arrival at USU, Doctor Elberson served as the Acting Associate Dean for Academic Systems and Faculty Affairs until the arrival of Colonel John Murray. Currently, Doctor Elberson holds the position of Associate Dean, Faculty Affairs, as a tenured Associate Professor. In addition, she serves as the Director of the GSN Ph.D. Program.

Doctor Elberson was selected to serve on the University Presidential Search Committee, during the past year. She is also the Chair of the GSN Student Promotion Committee; and, she serves in an *Ex Officio* capacity on the Committee on Appointments, Promotions, and Tenure (CAPT). She was instrumental in the coordination processes for the revision and approval of the GSN portion of the USU CAPT Instruction.

The revised CAPT document provides a mechanism for recommending ranks above Assistant Professor for military faculty who meet the criteria for Associate Professor/Professor. She also serves, or has served, as a member of the Graduate Curriculum Committee; the Space Committee; and, the Continuing Health Education Committee. In addition to serving on these Standing Committees, Doctor Elberson has served on numerous task forces (orientation, faculty workload, authorship, mission/vision, etc.). Doctor Elberson's research interest is in Health Promotion and Disease Prevention, especially in the area of cardiology and fitness. Her past research has dealt with mobility, heat response in migrant farm workers, and distance education. She has authored/co-authored several research articles. In particular, a co-authored article on prodromal and acute symptoms of myocardial infarction in women received national and international recognition. She submitted a grant proposal on the topic of the *Longitudinal Impact of Glucose Tolerance on Sarcopenia* to the National Institutes of Health, in January of 2005. She recently co-authored a publication entitled, *Collaboration: Leadership in a Global Technological Environment*, in a refereed on-line journal and has three additional manuscripts accepted for publication, during 2005. In February of 2005, Doctor Elberson was an invited Keynote Speaker at a leadership conference held in Sydney, Australia. Other leadership-related roles include her service on the Leadership Succession Committee for the Sigma Theta Tau International (STTI) Honor Society of Nursing and on the Nominating Committee of the GSN Tau Theta Chapter of STTI. She spearheaded a silent auction for Tau Theta that resulted in a total of $3,000, which will be allocated in support of a newly established Research and Scholarship Fund for the Chapter. Further, she has been invited to serve as one of the Founder's Awards Judges for STTI.

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GSN Acting Chair of the new Department of Health Systems, Risk, and Contingency Management (DHSRCM), Diane C. Seibert, Ph.D., CRNP, Assistant Professor, has research interests in genetics, women's health, and in technology-assisted learning. Doctor Seibert served as the Task Force Leader for the GSN Faculty Structure Task Force. In 2004, she received both the GSN Dean's Teaching Award and the Emerging Researcher Award.

Doctor Seibert was instrumental in the successful deployment of two ten-day genetic intensive courses for nurses, in the Spring of 2004. As a result of this collaborative effort, she was invited to speak on the topic of genetics and present her findings at several major conferences. She and two other faculty members from the Washington, D.C. Metro Area presented a 90 minute podium session on integrating genetics into APN curricula at the April 2004 NONPF Conference, held in San Diego, California. Doctor Seibert and a collaborative colleague, Doctor Fries, were invited to present their *Genetic Intensive Initiative* at a podium session during the October 2004 Armed Forces District Meeting of the ACOG/AWHONN in San Diego, California. Abstracts for poster presentations on the *Genetics Intensive Initiative* were accepted at the ISONG Meeting in Toronto, Canada; the AMSUS Meeting in Denver, Colorado; the NCHPEG Meeting in Bethesda, Maryland; and, the TRICARE Conference held in Washington, D.C. In January of 2005, Doctor Seibert was invited to participate in a working group to assist in the development of a document entitled, *Minimal Nursing Competencies and Curricula Guidelines for Genetics and Genomics*. Her abstract entitled, *Implementing the ACOG Cystic Fibrosis Screening Recommendations: What Nurse Practitioners Need to Know*, has been accepted for a podium session at the June 2005 AANP Meeting in Fort Lauderdale, Florida. She has been invited to write a chapter on the Genetics & Ethics of Cystic Fibrosis for an American Nurses Association Monograph and to present a concurrent session at the November 2005 ISONG Meeting to be held in Salt Lake City, Utah. Finally in February of 2005, Doctor Seibert was invited to consult with Michigan State University on implementing performance assessment through the use of simulated/standardized patient encounters.

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Barbara M. Sylvia, Ph.D., RN, Professor and Chair of the new GSN Department of Health, Injury, and Disease Management, Former Chair of the GSN Department of Research, has been involved in several funded research projects. As the principal investigator on a USU intramural funded project, she extended her work on prenatal care for military women from an earlier project funded by the TriService Nursing Research Program on which she was a co-investigator. Doctor Sylvia examined and compared the prenatal care of uniformed women within the continental United States (CONUS) versus care provided Outside CONUS (OCONUS). Using both qualitative and quantitative approaches, she examined prenatal care from the perspective of both the recipient and the provider. Doctor Sylvia participated in the 16th Annual Karen A. Rieder Nursing Research Poster Session at the AMSUS 2004 Conference held in Denver, Colorada. Major General Barbara Brannon, Assistant Surgeon, Nursing Services, Office of the Surgeon General of the Air Force, noted that Doctor Sylvia's poster, *Prenatal Care - Perceptions of Military Women versus Their Health Care Provider*, was reviewed with the Federal Nursing sector and MG Brannon stated:

> ***As our health care environment increases in complexity, it becomes even more essential that we expand our body of unique scientific knowledge to optimize nursing outcomes. Your contributions in research and investigation are taking us in the right direction. Thank you for your great example and your enthusiasm for finding answers to today's questions. I hope it will be a model for others to follow***.

In addition, Doctor Sylvia completed a research project as a co-investigator on a project funded by the TriService Nursing Research Program to compare the effects of two methods of diabetes care on glycemic control. She has published two recent research articles: *Prenatal Care-Needs, Availability, Accessibility, Use and Satisfaction: A comparison of Military Women Within and Outside of the Continental United States*, in Military Medicine; and, *Exploration of Facilitators and Barriers to Prenatal Care Among Military Women* in Nurse Practitioner Forum.

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Colonel Linda J. Wanzer, AN, USA, MSN, CNOR, Assistant Professor, and Director, Perioperative Clinical Nurse Specialist Track, joined the GSN faculty in September of 2002. Prior to her arrival, COL Wanzer served as the Chief of the Operating Room and Central Material Supply for the Landstuhl Regional Medical Center. While serving in Europe, COL Wanzer stepped into the role of Perioperative Consultant for Readiness Issues in support of the 212th MASH contingency and training missions - certifying surgical readiness prior to the receipt of surgical patients to ensure that the standard of care was met throughout the field environment. Additionally, COL Wanzer has led the way in patient safety innovation and productivity at the unit, institution, and regional levels. ***Her efforts at the unit level spearheaded institution and region-wide standardization efforts focused on the creation of a non-punitive environment for reporting medical errors and the establishment of a process for improving "systems/ processes."*** Numerous perioperative risk aversion/patient safety initiatives instituted by COL Wanzer were highlighted in the book written by Jean Reeder - Patient Safety: A Perioperative Competency Module; her work was also published as a guide on the Association of Operating Room Nurses (AORN) web-page. Since 2001, COL Wanzer has served as an advisor to the Army's Perioperative Consultant to the Surgeon General. She has blended theory with practice in her review of new initiatives from MEDCOM, as well as using metrics formulation related to access-to-care standards and patient safety metrics for the perioperative field. ***COL Wanzer was selected to be a member of the AORN Presidential Commission for Patient Safety,***

serving since 2002. As such, she interfaces with the entire perioperative community inclusive of the American College of Surgeons and the American Nursing Association to develop and standardize patient safety initiatives. During 2003, COL Wanzer was invited by the TriService Nursing Research Program to participate in a "Grant Camp" to develop a grant examining critical issues encountered in the operating room environment. ***COL Wanzer spearheaded relevant student research for the Perioperative Clinical Nurse Specialty (CNS) Program that is relevant to the Military and Federal Health Care Systems and impacts practice within the perioperative scope of service.*** Students in the Perioperative Clinical Nurse Specialty (CNS) Program conducted a patient safety project in collaboration with United States Pharmacopeia (USP) entitled, *Analysis of Perioperative Medication Errors (A 5-Year Summary of Data Submitted to MEDMAX)*. This study was the first of its kind to look at medication errors throughout the perioperative continuum of care. This collaborative project between USU and USP provided an opportunity to impact practice, education, and research that should ultimately improve the quality and safety of perioperative patient care. This study is one example of the progress made, during 2004, in focusing GSN research towards relevant and substantive issues to the Military and Federal Health Care Systems, highlighted by the GSN Signature Curriculum.

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CAPT Sandra C. Garmon Bibb, USN (Ret.), DNSc, RN, Associate Professor, retired from the United States Navy in June of 2004, following 30 years of active duty service. Doctor Bibb currently serves as a faculty member in the newly established GSN Doctoral Program, research faculty for the Family Nurse Practitioner option (GSN MSN Program), and the Research Director for the Perioperative Clinical Nurse Specialist option (GSN MSN Program). Doctor Bibb is also the Chair of the GSN Research and Evaluation Committee; and, she serves as an alternate member of the National Naval Medical Center Institutional Review Board. ***Her expertise is in the area of population-based health care with emphasis on health promotion, disease prevention, health care disparity, and secondary analysis of existing population-based data sets.*** After completing an MSN with emphasis on health promotion, disease prevention, and family health, in 1991, Doctor Bibb was stationed in Gaeta, Italy, where ***she helped design and implement a comprehensive health maintenance program for over 800 military health care beneficiaries.*** She returned to the United States in 1993, and before attending the University of San Diego as a Full-Time Duty Under Instruction Student in the United States Navy (January 1997 - May 1999), ***she was the Coordinator of Health Promotion for Region Nine TRICARE, in San Diego, California. In this role, she used existing population data to complete the first-ever epidemiological assessment (population health profile) of over 200,000 health care beneficiaries within Region Nine TRICARE***. In addition, in this role, Doctor Bibb and two other team members were assigned to use approximately two million dollars of Congressionally-awarded Breast Cancer Education, Prevention, and Treatment funds to implement Region Nine's Breast Cancer Initiative. For her dissertation work, Doctor Bibb combined her interest in exploring aspects of access to care and the influence of cultural beliefs and values on health promotion behaviors and disease prevention practices with her interest in the breast cancer morbidity and mortality disparity between African American and Caucasian women within the Department of Defense; she conducted a population-based study describing the *Relationship Between Access and Stage at Diagnosis of Breast Cancer in African American and Caucasian Women in the Military Health System*. Findings from this study were published in the August 2000 issue of Military Medicine and the May 2001 issue of Oncology Nursing Forum. In June of 1999, ***Doctor Bibb reported to Naval Hospital Camp Pendleton (NHCP) and assumed the role of Command Research Coordinator. It was in this role that she planned and conducted a comprehensive Population Based Needs Assessment that resulted in the establishment of a Population Health Department at NHCP, the first-ever in the Navy***. An essay detailing the *Needs Assessment Process* was published in the April 2001 issue of Military Medicine. ***Doctor Bibb was invited to establish and head***

the new NHCP department and led a team of multi-disciplinary health care professionals in conducting numerous population-based studies. Doctor Bibb justified funding to support personnel and data warehouse resources necessary to sustain a comprehensive population health improvement initiative for over 70,00 beneficiaries. In April of 2002, she was invited to conceptualize and establish a joint Naval Hospital Camp Pendleton-Naval Medical Center San Diego Population Health Office due to her success with population health and outcomes at NHCP. In July of 2002, *Healthy People 2000 and Population Health Improvement in the DoD MHS* was published in Military Medicine. Doctor Bibb is recognized as a subject matter expert in Population Health and has had numerous podium and poster presentations related to population health. ***She was the co-author of the population health curriculum for the Navy's original Clinic Management Course and was part of the United States Navy Bureau of Medicine and Surgery (BUMED) Population Health Improvement Training Team from 2000 through 2004.*** Doctor Bibb has received numerous professional achievement awards. In 1996, she received the ***Outstanding Military Woman of Achievement Award*** from the San Diego County Women's Council Navy League. In 2000, she was a ***Minority Access, Inc Alumna National Role Model Citation Recipient*** and the ***Mary Nielubowicz Award Winner*** for the essay, *Population Based Needs Assessment in the Design of Patient and Family Education Programs*. In 2003, she received the prestigious ***Hughes Career Achievement Award for the School of Nursing and Health Science*** from the University of San Diego; and, in April of 2004, Doctor Bibb received the ***Legion of Merit*** for her contributions to the Navy during her tour of duty at NHCP from June 1999 through April of 2004.

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GSN GRADUATE PROGRAMS.

As of the Summer of 2004, the GSN offers two Graduate Programs at the Master and Doctoral Degree levels. The Master of Science Degree in Nursing Program has three areas of focus: Family Nurse Practitioner; Nurse Anesthesia; and, Perioperative Clinical Nurse Specialist. The Doctor of Philosophy in Nursing Program prepares nurses in research, education, and leadership as required by the Military Health System, the United States Public Health Service, and other Federal Health Systems.

MSN Degree Program - Family Nurse Practitioner.

Background. The first formal training program to prepare advanced practice (pediatric) nurses was established in 1960. In 1967, public health nurses received advanced training to care for patients in their homes. Nurse practitioners were initially taught to take a full medical history, conduct a comprehensive physical examination, and oversee the use of medications. Eventually, nurse practitioners were performing those activities in the offices of the physicians with whom they worked.

In 1977, the Medicare statute was amended to allow nurse practitioners to provide primary care independently in underserved rural areas. Nurse practitioner programs grew quickly; and, advanced practice nurses found work in hospital-based clinics, providing care to underserved patients. In 1994, the National Advisory Council on Nurse Education and Practice for the Health Resources & Services Administration of the Department of Health and Human Services identified the need to upgrade the knowledge, skills, and abilities of the existing registered nurse work force to match the practice requirements within today's health care systems. Currently, every state gives nurse practitioners some level of pharmaceutical prescribing authority.

In 1995, the Institute of Medicine engaged in an inclusive study, *Primary Care: America's Health in a New Era*. The study provided the following definition: primary care is the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community. Today, through advanced education and training in the science of disease prevention, health promotion, health education, and community and home-based care, the advanced nurse practitioner is recognized as an essential member of the health care team.

The American Association of Colleges of Nursing continues to report that the demand for advanced practice nurses is increasing. Current demands across the country are for advanced practice nurses who can deliver a high complexity of care across the projected life-span of their patients within an integrated health care system. The current shortage of advanced practice nurses who are qualified to assess, diagnose, and manage patients in primary care settings has also been confirmed. In light of this, the nursing community is dedicated to ensuring that the existing nurse practitioner programs are of the highest quality and that they meet or exceed all educational standards and credentialing safeguards established by the National Organization of Nurse Practitioner Faculties and the credentialing entities of the National League for Nursing.

Program Assessment.

Operational readiness and deployment are integrated throughout the *Advanced Principles of Adult Primary Care Course*. The course is designed to teach the student to develop a problem-solving grid for a variety of health problems. The focus is on selected minor acute and chronic diseases seen in primary care. Healthcare considerations unique to the field environment are addressed when discussing content related to that body system. Students are required to present a 50-minute presentation on an assigned topic including discussion of operational readiness issues. *The Adult Primary Care Course* practicum places students in military clinical settings. Operational readiness issues are interspersed throughout the practicum through exposure to patient experiences and preceptor feedback. Examples of these content areas include training in: dermatology specific to the operational environment, including skin lesions due to chemical and biological agents, trench foot, rashes from extended wear of uniforms, and conditions due to contact with foreign soil; insect and animal bites in the operational environment; common orthopedic injuries in the field environment and nontraditional treatment options; psychiatry including battlefield fatigue, combat stress, and posttraumatic stress disorder; head, eyes, ears, nose and throat conditions such as corneal abrasions in the field environment and hearing loss and protection; gastrointestinal infections more common in field environments, their prevention and the dietary impacts of change and stress; and, upper respiratory infections seen abroad.

Operational readiness components are woven into many parts of the *Advanced Principles in Primary Care of Women Course*. Students are given a CD which provides a comprehensive overview of the health care of women in military settings. All of the lectures emphasize healthcare issues salient to military women. Students are required to present a 35-minute presentation which includes issues relevant to operational women's health. The practicum component of the course places students in military clinical settings where they have the opportunity to practice what they have learned. Military specific content covers: preconception counseling of military women; contraceptive issues related to deployment and field hygiene; and, brightfield microscopy, including a handout and helpful tips on microscope handling and how to make portable field responsive kits for wet smears and gram staining.

***The Integration and Application of Family Theory in Primary Care Course* integrates concepts of family theory with an emphasis on military families and their assessment. Operational readiness topics include family stress and coping, support systems, long distance relationships, and readjustment after deployment. Guest speakers, who are often soldiers who have been deployed, discuss programs available to family members such as the Exceptional Family Member Program, Family Advocacy Program, and Drug and Alcohol Program.**

Second year GSN FNP students have two practicum experiences, one in the Fall and one in the Spring. Each student is responsible for completing the minimum of 240 clinical hours each semester. The majority of this clinical time is completed in a military facility. Thus operational readiness issues are integrated into their clinical experiences.

- **USU Board of Regents,** Report to the Secretary of Defense, *Operational Readiness Curriculum Specific to the FNP Program*, June 22, 2005, pages 13-14.

The GSN curriculum is guided by the USU and GSN mission statements and by *The Essentials of Master's Education for Advanced Practice Nursing* (American Association of Colleges of Nursing (AACN), 1996). Nineteen GSN terminal objectives are encompassed under six headings, applicable to both nurse anesthesia and nurse practitioner practice. The AACN *Essentials* document has identified core content areas for all Master Degree Programs as well as three additional areas specific to Master Degree Programs for advanced practice, direct-client clinical care. Because of the unique practice requirements for USU graduates as uniformed officers, the GSN faculty has included an additional terminal objective heading, "Readiness," which is not included in the AACN *Essentials* document. *The Essentials of Master's Education for Advanced Practice Nursing* articulates well with the *Domains and Competencies of Nurse Practitioner Practice*, as outlined by the National Organization of Nurse Practitioner Faculties (NONPF, 2000). The practice of the nurse practitioner is also reflected in a nationally accepted measure of quality of practice that is found in the NONPF, *Domains and Competencies of Nurse Practitioner Practice*. The GSN nurse practitioner curriculum is designed to prepare graduates to practice according to those specialty standards. Graduates from the GSN Master of Science in Nursing Program options of: Family Nurse Practitioner; Post-Master Family Nurse Practitioner; and, Post-Master VA/DoD Adult Nurse Practitioner are able to sit for all applicable nurse practitioner national certification examinations.

Family Nurse Practitioner - GSN MSN Program Option - One of the Nation's Best. The Family Nurse Practitioner (FNP) option within the GSN MSN Program has had ten graduating classes from 1995 through April of 2005, with a total of 110 graduates, which includes the 7 nurses who earned their MSN Degrees through the GSN Distance Learning Program. The GSN FNP Program is one of the strongest programs in the country, as evidenced by the certification examination pass rate of its graduates. Over 98 percent of the GSN FNP graduates have consistently passed the AACN National Certification Examination on their first attempt, as compared to the national average of a 70 percent pass rate on the first attempt. The FNP Program now has more than 90 clinical practice sites. The FNP Program option is 24 months in length, and with the addition of the six-credit Military Contingency Medicine Course, now totals 65 academic credits with over 900 hours of clinical experiences. (*In June of 1999, FNP was increased from 21 to 24 months to allow for the integration of women's health competencies as recommended by the Federal Nursing Chiefs; initially, FNP was 21 months in length and included 720 hours of clinical experience*.) There are currently 9 students in the Family Nurse Practitioner Class of 2005, and 17 students in the Class of 2006. Of these 26 students, 15 student officers are from the Army; 3 students are from the Navy; and, 8 students represent the United States Air Force. FNP alumni continue to provide care in operational environments such as those found in Iraq and Kuwait; and, they care for injured and displaced persons in humanitarian settings and provide health care in challenging local settings (i.e., Federal penitentiaries). The FNP curriculum prepares the graduates to meet all of these challenges with confidence and competence.

The GSN FNP Graduates are able to: assess, design and implement an appropriate plan for individualized patient and family care; collaborate within multi-disciplinary Federal health care environments; design and provide appropriate patient education; integrate research findings into clinical practice; utilize safe practices and ethical perspectives in their clinical practice; and, readily adapt to the changes and demands of individual and environmental health care.

Scholarly Project. Each student must complete an individual or group thesis or scholarly project before graduation from the FNP Program. The student's research project generally has application to the practice of the nurse practitioner and includes both quantitative and qualitative research, surveys, and clinical studies. All topics must be relevant to the Uniformed Services and serve to enhance the clinical practice of the graduate; a GSN research committee ensures that each scholarly project meets the USU

requirements for a Master of Science Degree. All students are encouraged to publish their findings. During 2004, students were involved in a variety of scholarly projects; and, they were encouraged to publish in peer-reviewed journals or to give poster and oral presentations of their findings. An emphasis is placed on outcomes and how they may be incorporated into future practice.

Family Nurse Practitioner - Student Research Projects:

Student	**Title of Scholarly Project**
CPT Cornali	*Hypertension, Hyperlipidemia, and Diabetes Rates in Military Women*
CPT Crouch	*Health Promotion in Reserve Component Women*
CPT Gainok	*Extended Oral Contraceptive Therapy*
CPT Glidewell	*Mass Casualty and Disaster Preparedness Training (DPT) in the DiLorenzo TRICARE Health Clinic at the Pentagon*
CPT Mullen	*Diabetes Self-Management Abstract for PHS 398*
CPT Reilly	*Ethical Dilemmas Identified by Department of the Army Nurses During Deployments*
CPT Riordan	*Extended Oral Contraceptive Therapy*

Simulated Patient Experiences. In addition to traditional classroom and clinical activities, FNP has partnered with the National Capital Medical Simulation Center (SIMCEN) to integrate objective simulated clinical examinations into all major courses. These simulations have proven extremely beneficial on two fronts: they facilitate faculty evaluation of each student's mastery of critical clinical skills; and, they permit each student to develop and enhance necessary clinical skills in a non-threatening environment. The use of simulated patient experiences begins during the students' initial Health Assessment Course. In this course, students review foundational assessment skills, such as history-taking and the physical examination of all major body systems. Following didactic anatomy lectures and corresponding cadaver laboratories, students receive in-class instruction on the assessment of each of the body systems. They then proceed to the SIMCEN where they practice their assessments in collaboration with specially trained patient-actors (simulated patients). During these experiences, faculty and peers use one-way mirrors and telemonitors to evaluate each student's performance. After each encounter, peers and faculty provide a critique resulting in immediate and valuable feedback. SIMCEN experiences are also videotaped so that students and faculty can review them and receive additional instruction and guidance. Over the course of the 24 months, students are exposed to additional simulation experiences in the form of Objective Simulated Clinical Evaluations (OSCEs) in their Adult Health, Pediatric, Women's Health and Practicum Courses. Over time, scenarios become increasingly more complex.

Clinical Sites at Military Treatment Facilities. Since its establishment, FNP has completed memoranda of understanding with 17 military treatment facilities: **(Army - 6)** DeWitt Army Community

Hospital, Fort Belvoir, Virginia; Kimbrough Ambulatory Care Center, Fort Meade, Maryland; Walter Reed Army Medical Center, Washington, D.C.; Fort Carson Army Community Hospital, Fort Carson, Colorado; Womack Army Medical Center, Fort Bragg, North Carolina; Darnell Army Community Hospital, Fort Hood, Texas; **(Navy - 6)** Annapolis Naval Medical Clinic, Annapolis, Maryland; National Naval Medical Center, Bethesda, Maryland; Quantico Naval Medical Clinic, Quantico, Virginia; Naval Ambulatory Care Center, Groton, Connecticut; Portsmouth Naval Medical Center, Portsmouth, Virginia; Pensacola Naval Hospital, Pensacola, Florida; **(Air Force - 5)** Malcolm Grow Medical Center, Andrews Air Force Base, Maryland; 1st Medical Group, Langley Air Force Base, Virginia; 60th Medical Group, Travis Air Force Base, California; 10th Medical Group, Air Force Academy, Colorado Spring, Colorado; and, the 375th Medical Group, Scott Air Force Base, Illinois. Additionally, FNP has affiliations with 90 non-DoD, Federal and civilian treatment facilities. These facilities provide the backbone for the nurse practitioner student's clinical experiences.

Faculty Activities. FNP faculty maintain certification and clinical acumen by working one day each week in a clinical setting. By maintaining a clinical practice, FNP faculty remain current, expand their clinical skills and frequently have the opportunity to observe and mentor students. These faculty are also active within the GSN, the University, and their local communities. FNP faculty perform a myriad of services to outside agencies by serving: on church advisory boards; in parent-teacher associations and Girl Scout Troops; as guest lecturers at local universities; and, as teachers of Lamaze Classes. In addition to their community service, FNP faculty maintain membership in many professional organizations, including the American College of Nurse Practitioners, the Commission on Collegiate Nursing Education (Site Evaluator), the Nurse Practitioner Association of Maryland, several State Bar Associations, the North American Menopause Society, the National Organization of Nurse Practitioners Faculties, and the Sigma Theta Tau Honor Society. During 2004, Ms. Diane Padden finished the didactic portion of her Ph.D. program; she is expected to complete all requirements for her Doctoral Degree during 2005. Ms. Padden, currently, is the final GSN civilian faculty member enrolled in a doctoral program; all others have their doctoral degrees.

In 2005, the Family Nurse Practitioner Program will have 17 students in the second-year class, with 21 students projected to arrive in June of 2005. This will be the largest FNP class since the program began in 1993. **Lieutenant Colonel Reyn Mosier, MSN, CRNP, USA, Assistant Professor,** took over as the new Program Director for the FNP Program in July of 2004, when Doctor Diane Siebert, transitioned to become the Acting Chair for the Department of Health Systems, Risk, and Contingency Management (DHSRCM). In 2005, the GSN and the FNP Program will bid farewell to two faculty members; and, they will welcome two new faculty into the FNP family. **LTC Reyn Mosier, USA,** and **Colonel Sarah Wrenn, USAF, Ph.D., CRNP, Assistant Professor,** will be departing after three years at USU; they have been highly productive and dedicated members of the program and will be sorely missed. Their replacements are both USU/GSN alumni selected from a highly competitive field of candidates. **Major Sandy McNaughton, USA,** and **Lieutenant Colonel Michele Levey, USAF,** will be joining the GSN as faculty members next Spring.

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MSN Degree Program - Nurse Anesthesia.

Background. Nurse anesthetists have faithfully served their Nation during all of its wars and conflicts and during times of peace throughout the 20th Century. During the late 1800's, Doctor Charles Mayo appointed Alice Magaw, his nurse anesthetist at St. Mary's Hospital in Rochester, Minnesota, as the *Mother of Anesthesia*. She was a talented anesthetist at a time when people from all over the world came to the Mayo Treatment Center to learn from its physicians and nurses about anesthesia. In fact, the United States Army sent nurses to Doctor Mayo to study anesthesia before the Nation entered World War I.

Nurse Anesthetists provided anesthesia during World War I and served in Combat Clearing Stations near the front lines in France; they taught French nurses and physicians to do anesthesia, and with the concurrence of British physicians, taught British nurses to provide anesthesia; thereby, relieving over 100 physicians to do other medical and surgical work. During World War II, four nurse anesthetists were among the nurses captured in the Philippines, having provided anesthesia services in the jungles of Bataan and on Corregidor until the ether, other drugs, food, and ammunition ran out. Nurse Anesthetists served with distinction throughout every operational theater in WWII; they were at Anzio, Salerno, on board Navy ships, and went into Normandy with the first hospital.

Nurse anesthetists also served proudly during the Korean War, in Vietnam, Granada, Panama, Somalia, Desert Storm, Enduring Freedom, and other military missions requiring anesthesia capability. Throughout the past Century, physicians and nurse anesthetists have successfully worked together during times of war, humanitarian operations, and in civilian practice.

Nurse Anesthetists, among the first to incorporate the Harvard Monitoring Standards, consistently follow the philosophy that the nurse anesthetist has a duty to the patient he/she anesthetizes, to stay with the patient and to provide continuous care and monitoring. While most professional certifications for nurses were started in the 1970's, the Nurse Anesthesia Certification Program has existed since 1945. Specialty nursing certification has grown significantly over the last two decades. A study conducted by the Nursing Credentialing Research Coalition and released in February of 2000, found that certification has a dramatic impact on the personal, professional, and practice outcomes of certified nurses. Specifically, the study stated that certification is a successful approach to improving patient safety and the overall quality of care. In addition, the practice of anesthesia is much safer today due to advancing knowledge and technology, which allows every one in the operating room, from the surgeon to the nurse anesthetist, to the technician, to perform his, or her, job more efficiently.

Program Assessment.

The Basic Principles of Nurse Anesthesia Course **includes content on all field anesthesia equipment deployed in the operational setting and on the care and treatment of neurological and chemical casualties. Students are also taught to calculate gas inhalation concentrations, a unique need in the deployment setting where gas analysis is frequently unavailable.**

The Advanced Principles of Nurse Anesthesia Course **includes content on regional anesthesia and combat trauma.**

Chemotherapeutics for Nurse Anesthetists **includes lectures on acute and chronic pain management and therapeutic interventions that would be appropriate in the operational setting.**

- **USU Board of Regents,** Report to the Secretary of Defense, *Operational Readiness Curriculum Specific to the Nurse Anesthesia Program*, June 22, 2005, page 13.

The Competency Outcomes of the Nurse Anesthesia option in the MSN Degree Program are consistent with the missions of the USU and the GSN and with the *Essentials of Master's Education for Advanced Practice Nursing*, as accepted by the American Association of Colleges of Nursing (AACN, 1996). Additionally, the Nurse Anesthesia Competency Outcomes are in accordance with the American Association of Nurse Anesthetists' (AANA, 1996) *Standards of Nurse Anesthesia Practice*. The GSN graduates of Nurse Anesthesia are able to perform the following: a thorough pre-anesthetic assessment; obtain informed consent; formulate and implement a patient-specific plan for anesthesia care; collaborate with other members of the health care team; and, transfer the responsibility for care.

The GSN Nurse Anesthesia option, within the MSN Degree Program, has had nine graduating classes from 1996 through April of 2005, for a total of 121 graduates. Forty-four students are currently enrolled; Nurse Anesthesia is 30 months long with 53 academic credits. Nurse Anesthesia students average 65 clock hours at clinical sites each week; and, they complete 940 anesthetic cases during their program of study. In December of 2004, 17 students graduated from Nurse Anesthesia. All have passed the National Certification Examination for nurse anesthetists and are credentialed to practice in their respective Services. ***An astounding 12 of these 17 graduates attained the maximum score on the National Certification Examination in 2004!*** The Nurse Anesthesia Class of 2005 has 20 students; and, the incoming Class of 2006 has 24 students. Of those 44 students, six students are Army officers; five are Navy officers; 32 student officers are from the Air Force; and, one student officer represents the Public Health Service.

Upon completion of the Nurse Anesthesia option, the Nurse Anesthesia faculty are committed that, either through the oral examination process or actual demonstration on any patient or selected pieces of equipment, the nurse anesthesia graduate will have the ability to: comply with USU GSN requirements for graduation; meet, or exceed, Council on Certification of Nurse Anesthetists Case Requirements; satisfy eligibility requirements to write the Certification Examination; obtain the academic capability to pass the Certification Examination; successfully master the Terminal Objectives; and, be able to meet the mission of Nurse Anesthesia at USU.

Clinical training was restructured within Nurse Anesthesia to ensure that all students are assigned to a military hospital as their primary clinical training site. A clinical coordinator is assigned at each site whose primary responsibility is to oversee student scheduling and to evaluate their progress; this oversight responsibility has increased consistency in the evaluation and scheduling of the rotations. In addition, the site coordinators participate in all faculty meetings, maintain student records, and complete other administrative activities associated with running the clinical training.

Scholarly Project. Each graduate must complete an individual or group thesis or scholarly project before graduating from the GSN. The student's research project generally has application to anesthesia practice and includes bench studies, both quantitative and qualitative research, surveys, and clinical studies. All topics must be relevant to the Uniformed Services and serve to enhance the clinical practice

of the graduate. Students are encouraged to publish in peer-reviewed journals or to give poster and oral presentations on their findings. During 2004, students were involved in a variety of scholarly projects, including both clinical and bench research studies; and, increased emphasis was being placed on conducting quantitative studies.

In the Spring of 2003, **Lieutenant Colonel Bruce Schoneboom, AN, USA, CRNA, Ph.D. (USU Neuroscience Graduate Education Program Class of 2000), Assistant Professor,** joined the Nurse Anesthesia Program as the Research Director. LTC Schoneboom increased the tracking of the scholarly projects; and, he made visits to each clinical site to ensure that all of the students completed their research projects. In addition, LTC Schoneboom established relationships with leading military and civilian experts in the areas of intravenous anesthesia and pain management, which increased the research opportunities for the Nurse Anesthesia students. In 2004, **LtCol Paul Austin, USAF,** replaced LTC Schoneboom as the Nurse Anesthesia Research Director upon LTC Schoneboom's appointment as the new Director of the Nurse Anesthesia Program. Nurse Anesthesia students returning to campus prior to entering the last six months of their clinical rotations are encouraged to submit posters for presentation; and, students are required to present an oral defense of their research to meet the course requirements.

Nurse Anesthesia - Student Research Projects:

Student(s)	**Title of Scholarly Project**
Capt(s) Stevenson & Scholes	*Readiness Estimate and Deployability Index for AF Nurse Anesthetists*
LT(s) Leeds & Swift	*Laboratory Evaluation of Three Field Anesthesia Machine Ventilators*
Capt(s) Bland & Perkins	*History of Nurse Anesthesia in the Air Force*
Capt(s) Barberio & Bolt	*Pollution of Ambient Air by Volatile Anesthetics: Comparison of Four Management Techniques*
Capt(s) Acrosta & Aponte	*Use of Ultrasound in Placement of Intravenous Catheters*
Capt(s) Skinner, Gilmer, Molloy & Wells	*Imposed Work of Breathing of Airway Adjuncts*
LT(s) Volk & Rhodes, & LCDR Ryan Nations	*Effects of Fatigue on the Performance of Anesthesia Providers in a Simulator Setting*

Simulated Patient Experiences. The use of a patient simulator and the instructions for using regional anesthesia and central line placement have been incorporated, wherever possible, into the Nurse Anesthesia curriculum. This has resulted in providing a bridge between the academic and clinical phases of the educational experience. Today, the use of the SIMCEN has been expanded to incorporate: 1) the use of standardized patients in the Health Assessment Course; 2) the use of simulator bronchoscopic stations in teaching airway management; and, 3) the use of the human patient simulator for teaching Basic and

Advanced Principles of Anesthesia and Anesthesia Pharmacology. Other resources have allowed the use of virtual reality in teaching the Anatomy Courses; and, research studies are being conducted by the students and faculty to determine the quality of education utilizing virtual reality and the desirability for its use in the future. A faculty member of Nurse Anesthesia, in collaboration with faculty at Harvard University, worked on the use of the Anesthesia Simulator; and, a second laboratory section of the Patient Simulator Laboratory was instituted in conjunction with the Advanced Principles Course, which allows an increase of individualized instruction through the use of this state-of-the-art simulator.

Clinical Sites at Military Treatment Facilities. Nurse Anesthesia has four primary military clinical training sites: 1) the Air Force Medical Center at Wright Patterson Air Force Base, Ohio; 2) the Walter Reed Army Medical Center/National Naval Medical Center (a joint site as is the Anesthesiology Program) in Washington, D.C.; 3) the Naval Medical Center at San Diego, California; and, 4) the Air Force Medical Center at Keesler Air Force Base, Mississippi. Nurse Anesthesia students also rotate to 21 Federal, civilian, and non-DoD health centers to obtain additional experience and complete required cases. A full review of all primary and non-primary clinical sites was completed during 2003 as part of the recently successful re-accreditation process. In June of 2004, the Navy Nurse Anesthesia students also began using the Naval Hospital Jacksonville as a clinical site.

Faculty Activities. Continuous changes have occurred over the past year to enhance Nurse Anesthesia at the GSN. Communication has been enhanced by the creation of web-based bulletin boards, which allows for seamless communication between the students, faculty, and staff. In addition, password-protected educational materials are also posted, which allow the students to access a variety of material from any Internet-capable computer. The research component of the program is evolving from a thesis-based product to one more easily disseminated to the CRNA community. Increased emphasis is being placed on conducting quantitative studies and on presenting results through poster and oral presentations and publishing in professional journals.

While Nurse Anesthesia graduates do well on their National Certification Examinations, there are areas identified for enhancement. Two anesthesia simulators have been successfully integrated into the Principles of Anesthesia Courses. Both of the simulators, located in the USU School of Medicine Department of Anesthesiology and at the SIMCEN, are used many times per week to enhance student learning; and, changes in the curriculum, specifically regarding Pharmacology, were integrated during the Fall 2002 Semester. Computerized testing is being developed and will provide an inclusive review of the required material for students in their clinical phase. Other testing venues, such as oral boards, are also being developed. The Student Evaluation Examination (SEE) is being purchased for all students for use at two separate times during their training for assistance in determining future areas of concentration and study. Numerous testing strategies have been incorporated by the faculty into both the clinical and didactic phases of Nurse Anesthesia. In appropriate courses, examination questions were converted to a format similar to that found in the National Certification Examination; and, an Internet-based testing system has been adopted. Although the new testing system does not have the capabilities of a computer-adaptive examination, it is formatted similar to that found in the National Certification Examination. For example, once a question is answered and submitted, the student may not return to it to change the answer. Test statistics and examination grades are provided immediately upon the completion of each examination.

The Nurse Anesthesia Faculty Steering Team meets twice a year and reviews all courses, course evaluations, and course content. Changes have been recommended to further integrate the basic sciences, primarily Pharmacology, with the Principles of Nurse Anesthesia. Anesthesia Pharmacology will now

be introduced during the second semester, vice the third; this will allow more depth of knowledge to be presented in the Basic Principles of Anesthesia Course. The Medical Pharmacology Course, taken with the medical students, has been modified and feedback from members of the Class of 2004 indicates that the modifications, which increased the number of topics more specific to the practice of anesthesia, were beneficial.

A new educational experience for senior students has also been developed. In the Spring(s) of 2003 and 2004, the graduating Nurse Anesthesia Classes returned to the University for a series of seminars and workshops. Classes on regional anesthesia were conducted on cadavers in the USU Anatomical Laboratory. Advanced techniques were presented; and, students discussed difficult or significant cases that they had encountered at the clinical sites. An advanced airway workshop was presented; various adjunct equipment used for the management of the difficult airway was made available for practice on the patient simulator and other mannequins, to include the fiberoptic, Bullard laryngoscope, retrograde intubation, tube changers, the Combitube, and the Fastrach/LMA. Another laboratory allowed students to practice emergency surgical airways such as jet ventilation, cricothyrotomies and tracheostomies.

Crisis management was practiced and tested on the patient simulator. Students were given a series of scenarios to study prior to the testing period such as bronchospasm, MH, total spinal, and anaphylaxis. Students were then brought into the simulation area to experience a realistic scenario; immediate feedback was given to each student upon completion of the exercise.

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MSN Degree Program - The Clinical Nurse Specialist.

Background. In June of 2001, a need for a Clinical Nurse Specialist (CNS) option in the GSN MSN Degree Program was identified by the Federal Nursing Chiefs; and, the groundwork was completed to begin the development of the first Clinical Nurse Specialist option with a focus on Perioperative Nursing. A feasibility study and development of a pilot program were completed and presented to the Federal Nursing Chiefs. In January of 2002, Founding Dean Abdellah and the GSN Associate Dean presented the CNS option to the USU Executive Committee, receiving subsequent approval from the Surgeons General of the Army, Navy and Air Force. The CNS option was then approved by the USU Board of Regents during its meeting held on February 27, 2002. In the Spring of 2002, a selection process was initiated to identify the Clinical Nurse Specialist Director and supporting faculty from within the three Uniformed Services. Program development began in the Fall of 2002 with the arrival of the CNS Director. The program's curriculum and foundational structure were built around the American Academy for Colleges of Nursing publication on *Essentials of Masters Education for Advanced Practice Nursing*. The perioperative specialty content evolved from a comprehensive process of blending field research, program goals, and clinical expert interviews with the Federal Nursing Chiefs. Validation of the program's content/curriculum was accomplished through a process of merging program content with the published *Association of Operating Room Nurses Advanced Practice Competencies*. After minor adjustments were made, the "content map" was presented to key senior leaders within the perioperative community, uniformed and civilian, to ensure that the CNS content was congruent to support the new role in practice and within the Military Health and Federal Health Care Systems.

Program Assessment.

The *Standards Quality and Safety for CNS Perioperative Practice II Course* engages students in consultative/collaborative relationships with health care providers from several disciplines to focus on problem-solving activities within the practice environment. The link is made to contingency operations as students explore these relationships and address clinical issues such as malignant hyperthermia, advanced airway management, and trauma.

The *Leadership and Health Care Resource Management Course* integrates military operational venues within both traditional and contingency health care environments to challenge the Perioperative CNS with realistic fiscal and personnel resource allocation issues. Students formulate strategies for decision making while considering the impact those decisions have on operational performance. Contingency planning is one focus of this course. Students develop plans for the delivery of perioperative services during unplanned events such as natural disasters, influx of mass casualties, and significant loss of staff due to deployment.

The *Advanced Principles for Perioperative Management II Course* emphasizes the application of critical thinking skills in the analysis of facility design and renovation of perioperative settings. Throughout the design process, issues crucial to operational functions within this dynamic environment, in both fixed facilities and deployed settings, are emphasized. These include infection control, safety, work flow, efficiency, quality control, communications, climate control and force protection. Students also study standards with which they are expected to comply, such as the complex network of regulations from local, state, and Federal agencies and standards created by multiple professional organizations.

The *Clinical Practicum and Seminar for Perioperative CNS Practice I Course* has three main rotations. One focuses on the analysis of perioperative skill sets necessary to enrich the professional development of the perioperative nurse in trauma and/or contingency operations. During this rotation, students operationalize the knowledge and experience gained during *Military Contingency Medicine* and *Operation Bushmaster* (both are also required courses for the Perioperative CNS and FNP students) **to fully explore perioperative trauma competencies from a global perspective. The major thrust of the Clinical Practicum and Seminar for Perioperative CNS Practice II Course as it relates to operational readiness lies in instruction on the expanded role of the Perioperative CNS during operational missions. The surgical assistant activities in the operating room help the student gain clinical expertise on procedures similar to those in the deployed environment and didactic instruction in perianesthesia skills and the perianesthesia care unit.**

- **USU Board of Regents,** Report to the Secretary of Defense, *Operational Readiness Curriculum Specific to the Perioperative CNS Program*, June 22, 2005, pages 15-16.

Within this new program option, six new courses were developed and implemented in adherence with the guiding principles established by USU, GSN mission statements, *The Essentials of Master's Education for Advanced Practice Nursing* of the American Association of Colleges of Nursing (AACN, 1996), the National Association of Clinical Nurse Specialists (NACNS), and the Association of Operating Room Nursing Advanced Practice Competencies/Outcomes. To date, course outcomes and programmatic evaluations have met the outcome goals in preparing the CNS graduates to practice in accordance with specialty standards.

Clinical Nurse Specialist (CNS) - GSN MSN Program Option Focused on Perioperative Nursing - the ONLY Perioperative CNS Program in the Nation. The Perioperative Clinical Nurse Specialty (PCNS) option within the GSN MSN Program began with the Class of 2005 (entry date: June of 2003), with a combined total of eight students from the three Services (Army - 3; Navy - 2; and, Air Force - 3). The Class of 2006 (entry date: June of 2004) consisted of nine students representing the TriServices (Army - 2; Navy - 3; and, Air Force - 4). In support of establishing and maintaining a premier program, measures are taken to maximize the programmatic use of resources unique to the National Capital Region. Adjunct faculty have been identified throughout the Region/Nation, across Service lines, and within industry, to augment the on-site perioperative team in the expansion of the breadth and depth of both clinical and specialty-specific learning outcomes for the PCNS students.

Scholarly Project. Each PCNS student must complete an individual or group thesis or a scholarly project before graduating from the GSN. The student's choice of research projects is focused on topics relevant to the Uniformed Services; topics must be aligned with the GSN research focus; and, they must be targeted to enhance clinical practice within the specialty. All students are encouraged to publish in a peer-reviewed journal and/or to conduct poster and oral presentations on their findings. Students enrolled in the Perioperative CNS Program are currently conducting research within the following GSN Research Foci.

Patient Safety: Reducing the Risks for Surgical Populations.

- *Class of 2005*
    - Pilot study designed to collect/analyze data to profile common characteristics of the surgical population who may be at risk for untoward events related to body piercing(s).
    - Secondary analysis of medication error data conducted to identify the impact of organizational characteristics on the occurrence of medication errors across the perioperative continuum of care.
    - Identify/quantify the presence of microbial flora on telephones in the OR as a platform for future research to correlate microbial flora and nosocomial infections.
- *Class of 2006*
    - Pilot study designed to describe the effects of continuous, prolonged fluoroscopy on surgical patients.

Evidence-Based Practice.

- *Class of 2006*
    - Assessment of the completeness and accuracy of Federal Health System Clinical Databases used to foster evidence-based practice within the perioperative environment.

Leadership/Support.

- *Class of 2006*
    - Role identification for the Perioperative Clinical Nurse Specialist utilizing a systematic review of the literature.

Simulated Patient Experiences. The incorporation of simulated patient experiences as a learning activity for the PCNS students is utilized within several of the PCNS courses, beginning with the first nine-week summer semester: *Advanced Health Assessment: Clinical Correlates for Perioperative CNS*. This course provides a foundational program of instruction challenging students' critical thinking and clinical decision-making abilities, as applied to perioperative patients in the traditional and operational health care environment. Utilizing *Standardized Patients*, students are evaluated on interviewing skills, collaboration with interdisciplinary health care providers, and critical assessment knowledge in the development of perioperative care plans. With the assistance of *Standardized Patients*, this course provides a venue for students to effectively manage surgical patients and positively influence outcomes, which are vital roles of the advanced practice nurse. Additional learning opportunities utilizing simulation learning laboratories

are used to augment lectures with hands-on applications (i.e., airway laboratory and surgical experience during the Bushmaster field exercise).

Technological Support for Learning. Technologies are used to further enhance the learning environment through the development of on-line learning modules/activities (i.e., threaded discussions, activity postings with peer analysis, and modules with on-line skills tests).

Clinical Sites at Military Treatment Facilities. Currently, the PCNS Program is utilizing six primary clinical training sites located within the National Capital Region: 1) the Walter Reed Army Medical Center, Washington, D.C.; 2) the National Naval Medical Center, Bethesda, Maryland; 3) the Malcolm Grow Medical Center, Andrews Air Force Base, Maryland; 4) the Dewitt Community Hospital, Fort Belvoir, Virginia; 5) the National Institutes of Health (NIH), Bethesda, Maryland; and, 6) the Veterans Administration, Washington, D.C. There, in consultation with their clinical preceptors, the students receive focused, clinical experiences and complete projects within the five CNS domains. A clinical coordinator oversees student scheduling and is involved in the evaluation phase of the students' progress. In addition to the traditional clinical experiences within the medical treatment facilities, experiences with industry and associated military support sites are utilized (i.e., Region 1 TriService Standardization; Facilities Design - Office of the Surgeon General; the Joint Commission on Accreditation for Health Care Organizations; Manpower Regionalization; the Joint Readiness Clinical Advisory Board at Fort Detrick, Maryland; United States Pharmacopoeia; and, Kaiser Permanente in San Francisco, California).

Faculty Activities. During the development and implementation phase of the overall program, all aspects in support of student learning experiences were developed. Communication mechanisms for both the faculty and students were created in the form of a password-protected, web-based bulletin board, which serves as a *one-stop-shop* for student access to course syllabi, class outlines, and educational/lecture materials. A *Patient-Safety* resource site was also established, especially for the PCNS students and placed on the USU Learning Resource Center web site to facilitate specialty projects throughout the PCNS option.

Evaluation Structure. An evaluation structure for the PCNS option within the GSN MSN Program has been established, linking student evaluations with the course coordinator evaluations, which immediately follow the students' final examinations. This process provides an inclusive review of each course, with immediate feedback from the entire PCNS faculty; this orchestrates course changes and enhancement. During the review process, the course coordinator provides the Program Director with a CD complete with the course syllabus, class competency outcomes, learning activities, PowerPoint lectures, and handouts to be archived for future use.

Teaching Across Programs. Key to the success of the PCNS option is the *leveling of course content* to ensure consistency with the GSN terminal objectives. Dean Hinton Walker maximized the faculty resources of the GSN by *actualizing* the faculty in terms of course development, thus fostering an organizational climate supporting the theory of *teaching across programs*.

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The Doctor of Philosophy Program.

Background. To meet an evolving requirement for nursing research relevant to the MHS, the USPHS, and other Federal Health Systems, in March of 2002, with the approval of the Federal Nursing Chiefs, the GSN Founding Dean began the process for the development of a Doctoral Program in Nursing. The GSN Doctoral Program prepares nurses to be uniquely qualified as leaders in research, education, and clinical practice to serve in the MHS, USPHS, and other Federal Health Systems. In the context of concerns over patient safety, nursing research must be conducted to assess the linkages between nurse staffing, safety, and outcomes assessment throughout the TRICARE Management Activities. Additionally, with the well-recognized national shortage of both staff nurses and nursing faculty, GSN doctoral graduates are prepared to augment faculty requirements at educational organizations and to provide researchers for studying health care in the MHS, USPHS, and other Federal Health Systems. ***A doctoral program that has a focus on the MHS as well as the USPHS and other Federal Health Systems is not available at civilian universities; and, no other institution is better positioned than the USU GSN to provide a Doctoral Program with such a unique focus.***

Dean Hinton Walker presented the GSN Doctoral Program to the USU Board of Regents (BOR) and received formal approval for the establishment of the Doctoral Program at the BOR meeting of October 24, 2002. In addition, the GSN held inclusive focus sessions to determine both the interest and support for its proposed Doctoral Program, to include the initiation of steps for the enrollment of its Charter Class, during 2003. The Doctoral Program in Nursing is open to DoD nurses (active duty, reserve, and civilian) and to nurses from other Federal agencies who are nominated and supported by their Service or Agency. The new program accommodates both full-time and part-time students and incorporates aspects of both distance and alternative learning, as appropriate. The GSN welcomed its first doctoral students in the ***Fall of 2003***, bringing to realization the vision of the Founding Dean. ***Three students were admitted into the full-time program*** (Army - 2; Federal Health Agency - 1); they are expected to complete their degree requirements by 2006. Ten students (USPHS - 4; Veterans Affairs - 2; Reserves - 4) matriculated into the part-time option. Of the initial ten part-time students, eight remain and are expected to complete their degree requirements by 2008. (*NOTE: The GSN part-time doctoral students work at their assigned sites during the day and participate in the Doctoral Program after working hours.*)

The second cohort of doctoral students entered in the ***Fall of 2004***. ***Four full-time doctoral students were enrolled***: Air Force - 2; and, Navy - 2; they are expected to complete their degree requirements by 2007. Nine part-time doctoral students matriculated into the program: Army - 2; Health and Human Services - 2; USPHS -2; Veterans Affairs - 1; and, civilians - 2 (one is employed by DoD; the other is employed at the Walter Reed Army Medical Center); the part-time students are expected to complete their degree requirements by 2009.

The Doctoral Program in Nursing Science includes a common core of required courses and electives. The program consists of five areas of concentration: 1) *Nursing Knowledge*; 2) *Research Methods, Statistics, and Designs*; 3) *Cognate/Elective Courses*; 4) *MHS and Federal Health Care Policy and Issues*; and, 5) the *Dissertation*. The ***Nursing Knowledge Core Content*** consists of a sequence of courses focusing on the development and application of theory in nursing and related disciplines and ethical conduct in nursing practice and research. ***Research Methods, Statistics, and Designs Core Courses*** examine approaches in both qualitative and quantitative research. Advanced research methods core courses address relevant issues of the MHS, the USPHS and other Federal Health Systems via existing large data sets, while assisting graduates to develop continuing programs of research. ***Cognate/Elective Courses*** support and strengthen the selected research focus and/or process. ***MHS and Federal Health Care Nursing Policy***

and Issues Core Courses focus on MHS-specific and Federal health care issues, thus preparing graduates to conduct research and to assume leadership roles in this area of study. These four components culminate in the fifth component, the ***Dissertation***, which follows the successful completion of the qualifying and comprehensive examinations. A minimum of 96 semester hours is required to complete the program. The GSN doctoral program is comparable in structure to the existing USU School of Medicine Graduate Education Programs.

The curriculum has three focused research and practice areas. These include: 1) Population Health and Outcomes; 2) Operational Readiness in a Changing Environment; and, 3) Clinical Decision-Making in the MHS, the USPHS, and other Federal Health Care Systems. Strong cross-cutting emphasis is placed on patient safety, ethics, force protection, the impact of technology, and international health.

All doctoral students will participate in structured research assistantships to broaden and improve their research experience. Proposed practicum experiences include research-focused experiences in the National Capital Area at DoD, USPHS, or other Federal Agencies with uniformed nurse researchers or at civilian health care facilities. To address current and future nursing requirements, teaching assistantships will also be offered to prepare some GSN graduates as educators in response to the ever-increasing national shortage of doctorally-prepared faculty.

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MSN Degree Program - Post-Master Certificates.

The Post-Master FNP Certificate. The Post-Master (PM) Certificate was established in 1999, primarily in response to the Army Nurse Corps' decision to transition from a specialty nurse practitioner to a family nurse practitioner focus. As the transition progressed, the number of students in the PM option varied, with the GSN annually awarding certificates to between one and four FNPs between 1999 and 2003. To date, the USU GSN has awarded Post-Master FNP Certificates to 15 uniformed officers. The PM option varied in length from 9 to 12 months, depending on the student's prior education and experience; there were 31 academic credits with 562 hours of clinical experience. In August of 2002, two Post-Master students completed the PM option and four new students were enrolled. This group of students (the Class of 2003) was the last, as most of the Army's Specialty Nurse Practitioners have, by now, become FNPs, retired from the Army, or transitioned into a nursing administration or leadership role.

The Adult Nurse Practitioner Post-Master Certificate - The Department of Veterans Affairs/ Department of Defense Distance Learning Program.

This distance learning program has been particularly important for the San Juan VA since there are no Nurse Practitioner Programs in the local community, nor in the United States Virgin Islands.

This collaborative program between the Uniformed Services University of the Health Sciences and the Department of Veterans Affairs has been one of true excellence. It has produced a group of professionals, fully prepared through course work and clinical practice, to diagnose and manage primary care of adults. It is a living example of successful VA/DoD collaboration.

The support provided by the program faculty and staff has been extraordinary. The feedback to the participants has been timely and always helpful. The site visits were one of the program elements that helped participants and preceptors alike, to remain on course towards the goals of the program.

The graduates of this program have wisely used this opportunity to advance their careers and, ultimately, to be better prepared to provide the excellence in care that our veterans deserve...

As you prepare for your certification exams, do so with the confidence that you have been given the best preparation you could possibly have received and you have demonstrated that you have the commitment to continue achieving your goals.

- **Ms. Kathleen Collins, VA Medical Center, San Juan, Puerto Rico,** Remarks at the Department of Veterans Affairs/Department of Defense Distance Learning Nurse Practitioner Program Virtual Graduation Ceremony, May 13, 2003.

Background. The restructuring of the Department of Veterans Affairs (VA) Health Care System in the mid-1990's called for a 200 percent increase in the number of primary care providers throughout 155 VA Medical Centers. To achieve this goal, the VA determined that one effective solution would be to assist currently employed, Master Degree-prepared VA nurses to obtain new knowledge and skills as nurse practitioners. *Nearly 750 VA Master Degree-prepared clinical nurse specialists indicated interest in a post-degree, nurse practitioner certificate program if it were offered via distance education.* The USU Graduate School of Nursing (GSN) was selected by the VA to coordinate this effort. The USU GSN curriculum was unique and a national first because it was built on the excellent resources of the VA to implement well-defined, closely-monitored, clinical practica offered concurrently with didactic content provided by the fully-accredited USU GSN.

Responsibilities of the USU GSN. Under the direction of **Founding Dean Faye Glenn Abdellah, Ed.D., Sc.D., RN, FAAN**, the USU GSN agreed to: 1) determine the length of the program; 2) establish the curriculum; 3) allocate credit for the courses; 4) assure that graduates were qualified for certification; 5) develop policies for the transfer of credit for prior courses; 6) adjust and modify institutional policies to accommodate the VA civilian registered nurse students; 7) validate appropriate faculty from the VA and the GSN to instruct in the Distance Learning Program (each had to hold at least a Master Degree, preferably in Nursing, be prepared in a nurse practitioner specialty, and be currently certified); 8) provide support staff; and, 9) procure resources for the new post-master certificate. The classes were designed to parallel the on-campus GSN courses and would be held twice a week for two hours, with a third hour conducted as a laboratory activity by the lead preceptor at the individual VA sites.

Responsibilities of the VA. **Charlotte Beason, Ed.D., RN, CNAA, Director, VA Nursing Strategic Healthcare Group of the Office of Patient Care**, was the Project Coordinator with responsibility for ensuring that the VA would: 1) utilize its national telecommunication network for the Distance Learning Program; 2) obtain the distance learning sites at the VA Medical Centers; 3) select the students and submit candidates to the GSN for evaluation of academic requirements; 4) provide educational resources for the students such as library books and computers; 5) approve the assignment of VA employees to serve as on-site preceptors who would coordinate with the GSN in the Distance Learning Program; and, 6) provide the VA portion of the funding for the Project.

Responsibilities of the VA Medical Centers with Distance Learning Sites. The VA Medical Centers with distance learning sites agreed to provide the following: 1) an educational coordinator to administer the certificate program; and, 2) a Master Degree-prepared nurse practitioner preceptor to arrange and supervise the clinical aspects of the distance learning program.

During Late 1996, the GSN and the VA Nursing Strategic Healthcare Group Entered into a Working Partnership and Agreed to Conduct a Two-Phase Project. Phase I would consist of one course to test the feasibility of the project. Phase I, The Pilot Project Test Class, was initiated in early 1997. Following extensive evaluation, it was found that it successfully met the didactic and clinical requirements of both the GSN and the VA. Phase II contained the remainder of the curriculum study. Phase II, the twenty-month VA/DoD Distance Learning Program, was initiated in the Fall of 1997. Phase II included 35 students located at eight VA Medical Centers from California to New York; the certificate program was

conducted in conference rooms on the USU campus, which were fully equipped for teleconferencing. The curriculum developed by the GSN emphasized: 1) comprehensive physical and psycho-social assessment; 2) decision-making processes in both acute and chronic health conditions; and, 3) health maintenance care. The distance learning program consisted of nine courses that stressed both health promotion and disease prevention. There were 29 credits of didactic content and a minimum of 560 hours of clinical experience over five semesters or 20 months.

Technology Used in the Distance Learning Program. The VA/DoD Distance Learning Program is composed of didactic course work delivered via state-of-the-art distance learning technology, including interactive video teleconferencing and the Internet. The GSN extended its network of high-speed, digital telephone lines from USU's compressed-video classroom to the VA Telecommunication Center in Martinsburg, West Virginia (the Hub), which in turn, is linked to the various distance learning sites at the VA Medical Centers. During the twenty-month Distance Learning Program, the VA was in the process of upgrading its technological capacity. As a result, most of the VA Medical Centers were equipped with video teleconferencing capabilities. Several computer and educational technologies were immediately required to ensure the success of the project. Requirements included: an upgrade of the file server at the Hub in Martinsburg, West Virginia; the establishment of a video teleconferencing unit at USU; and, the confirmation of video conferencing capability at each site. All was accomplished.

The First Advanced-Level Virtual Graduation in the VA and the DoD. Twenty-six students graduated through a virtual commencement exercise from the VA/DoD Distance Learning Program on May 18, 1999. An additional student completed requirements during August of 1999, bringing the total to 27 graduates in the first class. Outcome data from present students, alumni, and employers reflect extremely high levels of satisfaction with the distance learning program. The second virtual graduation took place on May 15, 2001, with thirty-three graduates. A third class of ten students, located at four sites in the Continental United States, Puerto Rico, and the Virgin Islands, was recognized on May 13, 2003, during a virtual graduation ceremony. **Seventy individuals have successfully graduated from this exceptional distance learning program.** The program was halted following the third graduation because the VA had reached its target goal of Nurse Practitioners.

Summary. The experience gained by both the GSN and the VA will allow future projects in distance learning to benefit from the lessons learned and the technologies tested during the twenty-month, VA/DoD Distance Learning Program. Outcome evaluations continue with the early graduates and their supervisors. The technology continues to evolve to reflect the rapid growth of the field. The difficulties faced by the project coordinators in creating a new distance learning program utilizing the latest technologies were numerous and challenging; the GSN and the VA Departments, faculty, staff, and students who succeeded in doing so, were well pleased with their initial results and continued to work to improve their educational efforts in distance learning. A report was also submitted to the Congress as the VA and DoD response to a legislative directive for a summary report on the VA/DoD Distance Learning Program. To ensure that other Federal entities could easily access the lessons learned during this Program, a joint report was issued by the GSN and the VA Nursing Strategic Healthcare Group in November of 2000. The report, <u>The VA/DoD Post-Master Adult Nurse Practitioner Program: From Concept to Graduation</u>, documents, in chronological order, the formulation of the partnership between the DoD and the VA, the conceptual stages and developmental processes, learning strategies, course evolvement, assessment methodologies, clinical

experiences, and the transmission effectiveness (computer technology and video teleconferencing) for the entire program. In short, the report provides an inclusive roadmap for implementing a distance learning program - from concept to the matriculation of the second class. **Future initiatives between the GSN and the VA are being considered with an emphasis on improving nursing practice and health care for veterans.**

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IV. GRADUATE EDUCATION PROGRAMS

The Graduate Programs at USU are important to the University for many reasons. They help to train a cadre of well qualified, experienced biomedical scientists and public health practitioners who will continue the tradition of scientific service to the Nation in the civilian and military worlds. Strong Graduate Programs are important because of the major effect that active Graduate Programs have on the intellectual vitality of Departments and Programs. The presence of well-populated and thriving Graduate Programs is also an important factor in the recruitment of the best applicants for faculty positions at the University. USU Graduate Programs already serve these multiple needs.

Graduate student contributions to research in their mentors' laboratories form an important contribution to the overall productivity of research programs. We do not have complete statistics on the papers from USU faculty in which graduate students are listed as co-authors, but some information is available. Six Graduate Program Directors responded to a request to identify peer-reviewed papers with publication dates from 1996 to 2002 by faculty in their Programs in which students were identified as co-authors. ***A total of 108 peer-reviewed publications were identified across the six Programs, with 62 individual graduate students serving as co-authors*****. Publication rates vary considerably among Programs, reflecting the different search styles across biomedical research disciplines, and this is certainly an incomplete count of graduate student publications from USU.** ***The data support the contention that graduate students play an important role in maintaining and facilitating research productivity among USU faculty*****.**

- *VIII, Graduate Education in the Biomedical Sciences and Public Health,* Subcommittee Report, Middle States Association of Colleges and Schools (MSA) Self-Study, submitted to the Evaluation Team representing the Middle States Commission on Higher Education prior to their site visit on March 30-April 2, 2003.

ESTABLISHMENT

The Uniformed Services Health Professions Revitalization Act (Public Law 92-426) Established the University in 1972 and Directed the Establishment of Graduate Education Programs. Following Congress' establishment of the University and the School of Medicine, in 1972, the early founders understood that in order to gain and sustain accreditation, Graduate Education Programs had to be structured within the School of Medicine. The Liaison Committee on Medical Education (LCME) accreditation process is designed to certify that a medical program meets prescribed standards. It is recognized by both the LCME and the USU Board of Regents that graduate programs in the basic medical sciences leading to the Doctor of Philosophy Degree or to appropriate degrees at the Master Degree level are essential components of a School of Medicine dedicated to excellence in medical education.

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The Establishment of the Office of the Associate Dean for Graduate Education. In accordance with the requirement to ensure the academic excellence of the newly established Graduate Education Programs, the Dean of the USU School of Medicine (SOM) appointed **Colonel John W. Bullard, Ph.D., USA, (Retired), as the Assistant Dean of Graduate and Continuing Education Programs**. Doctor Bullard was recognized as one of the Army's experts on educational affairs, and in particular, continuing education. He had been a Medical Service Corps officer who had served in Vietnam and had been previously assigned to the Army Academy of the Health Sciences, the Office of the Surgeon General of the Army, and the Office of the Assistant Secretary of Defense for Health Affairs. The SOM admitted its first graduate students in 1977. During the early 1980's, in an effort to highlight the contributions of the Graduate Education Programs, Doctor Bullard began a research symposium to showcase the research contributions of the graduate students. Following Doctor Bullard's death in November of 1990, the Office of the Dean, SOM, with the concurrence of the USU President and Board of Regents, and in recognition of the importance of the Graduate Education Programs, determined that the leadership position for the Graduate Education Programs should be separated from the Continuing Education Programs and a subsequent search was held for the position of Assistant Dean for Graduate Education. **Michael N. Sheridan, Ph.D., Professor, USU Department of Anatomy and Cell Biology**, was selected as the second Assistant Dean for Graduate Education in 1991. The Dean, SOM, elevated the position to Associate Dean for Graduate Education in 1993; Doctor Sheridan served in that position until August of 2001, when **Cinda J. Helke, Ph.D., Professor of Pharmacology and Neuroscience**, was selected to serve as the Associate Dean for Graduate Education. In June of 2004, Doctor Helke passed away after a battle with cancer. **Eleanor S. Metcalf, Ph.D., Professor of Microbiology and Immunology and Director, Emerging Infectious Diseases Program,** was named Acting Associate Dean for Graduate Education in June of 2004; she continues to serve in the position while a national search for a new Associate Dean for Graduate Education is underway.

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Graduate Education Programs Provided at USU. The Doctoral and Masters Degree Programs available at USU are:

Interdisciplinary Ph.D. Programs in Emerging Infectious Diseases, Molecular and Cell Biology, and Neuroscience;

Departmentally-Based Ph.D. Programs in Clinical Psychology, Environmental Health Sciences, Medical Psychology, Medical Zoology, and Pathology;

Doctor of Public Health Program (DrPH);

Physician/Scientist (M.D./Ph.D.) Program;

Masters of Science Programs in Public Health and Molecular and Cell Biology;

Master of Comparative Medicine (MCM) Program;

Master of Public Health (MPH) Program;

Master of Tropical Medicine and Hygiene Program (MTM&H); and,

Master of Military Medical History.

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Graduate Education Programs Generate Cost Avoidance for DoD during 2004 - $1,340,000. Since the establishment of the USU SOM Graduate Education Programs in 1977, through April of 2005, a total of 845 advanced degrees have been granted by the University: 251 Doctors of Philosophy; 15 Doctors of Public Health; 82 Masters of Science; 457 Masters of Public Health; 8 Masters of Science in Public Health; 28 Masters of Tropical Medicine and Hygiene; and, 4 Masters of Military Medical History. During 2004, 38 uniformed officers received advanced degrees (34 Masters Degrees and 4 Doctoral Degrees); at an average cost of $30,000 per Master Degree (34 x $30,000 = $1,020,000) and $80,000 per Ph.D. or DrPH Degree (4 x $80,000 = $320,000), the USU SOM Graduate Education Programs generated $1,340,000 of cost-avoidance for the DoD during 2004. (Note: The average costs were estimated based on tuition and fees in biomedical graduate programs associated with medical schools in the National Capital Area (George Washington University, Georgetown University, University of Maryland at Baltimore, and John Hopkins University).

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MISSION

"The USUHS shall: ....4.3. Grant applicable advanced academic degrees; establish postdoctoral and postgraduate programs, and technological institutes; conduct medical readiness training and continuing education for members of the Uniformed Services in the health professions; and prepare individuals for careers in the health professions in the Uniformed Services."

- DoD Directive 5105.45, dated March 9, 2000, page two.

Mission Direction Calls for the Development of Graduate Education Programs. The goal of graduate study at the USU School of Medicine is to develop independent scholarship, originality, and competence in research, teaching, and professional service in the biomedical sciences and public health. This goal has guided the development of the Graduate Education Programs, which are designed for outstanding students committed to careers in the basic medical sciences, public health, or tropical medicine. The purpose of the Graduate Education Programs and their relationship to the School of Medicine were defined in the founding documents, which recognized that superior Graduate Education Programs in the basic medical sciences are an essential component in the accreditation process for a school of medicine.

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Graduate Education Programs Benefit the Military Health System. Graduate Education Programs in the basic medical sciences benefit the USU and the Military Medical System (MHS) as follows: 1) the Graduate Education Programs provide training opportunities for qualified active duty personnel of the Uniformed Services who receive authorization to participate in the USU graduate training programs under the sponsorship of their parent Services; 2) graduate students have the opportunity to become aware of the outstanding investigative programs, which are on-going in the Department of Defense laboratories located throughout the Washington, D.C. area. It is anticipated that the research institutes within the Department of Defense will be assisted in their recruitment of well qualified graduates on the basis of the mutual knowledge and respect developed during the graduate students' interactions at USU; 3) the academic environment of the SOM is maintained at a high level exposing the uniformed physicians-in-training to the disciplined methods of critical scientific inquiry, which are the rational basis of problem solving in medical science; 4) graduate students participate as teaching assistants and assist in the performance of instructional and investigative efforts, which are essential to the mission of the SOM and significant to the MHS; and, 5) doctoral programs and students are essential to attract and retain outstanding research faculty at USU.

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Responsiveness to the Needs of the Services.

Master of Military Medical History. A specific example of the USU Graduate Education Programs' direct response to the needs of the Surgeons General is the creation of a program for the Master of Military Medical History. This program is an outgrowth of the Fellowship in Military Medical History established at USU, in 1983, to train instructors of history for the United States Army Academy of the Health Sciences. A request was received from the Medical Service Corps of the Army to establish a degree granting program so that officers could continue to be used for the preservation of lessons learned and to fill history education/ teaching assignments at the Army Academy. Thus, the program was designed to meet the needs of Army officers in the Medical Service Corps Military Occupational Specialty (MOS) 70H, to prepare officers to serve as instructors in professional military medical education programs and for utilization as field historians for specific military medical issues. The program of study is currently limited to officers in the Medical Service Corps of the Army; four degrees have been granted in 1997, 1998, 2001 and 2003. The Program Director can be contacted by e-mail at <*dcsmith@usuhs.mil*> or at <*www.usuhs.mil/meh/gradprog.html*>.

The Graduate Program in Clinical Psychology Trains Clinical Psychologists to Serve in the Uniformed Services. The Graduate Program in Clinical Psychology is designed to train clinical psychologists to serve in the Uniformed Services. Students earn Master of Science (with master thesis) and Doctor of Philosophy (with doctoral dissertation) Degrees. This graduate program is designed to prepare broad-based Ph.D. clinical psychologists and to emphasize both an appreciation for, and an understanding of, the special needs of the Uniformed Services. The program trains clinical psychologists to be: effective providers of mental health services; creative problem solvers; critical thinkers sensitive to organizational needs and constraints; effective managers and communicators; and, professionals with the ability to evaluate processes and outcomes designed to improve the quality of health care. To accomplish these goals, the Ph.D. Program in Clinical Psychology follows the scientist-practitioner model of training. The program strongly values the development of knowledge and skills in applied clinical psychology and trains students to apply critical thinking skills to real world patients and situations, particularly in military and public health settings. The Ph.D. Degree requires independent scholarly work, comprehensive clinical training, a strong base in the foundations of psychology, and specialty training in uniformed clinical, health, and organizational psychology. A year-long, full-time clinical internship is also required for graduation. This program is open to individuals who currently are serving in, or who are eligible and willing to join, the Uniformed Services; and, it is accredited by the American Psychological Association (APA). A re-accreditation site-visit by the APA took place on January 29-30, 2004; the decision to grant reaccreditation through 2011 was reached during a meeting held on July 15-18, 2004. The Doctoral Program in Clinical Psychology will (continue to) be listed annually among accredited programs of professional psychology in the American Psychologist and on its Accreditation Web Pages (also discussed under the Accreditation section, which follows). Since 1996, 14 individuals have graduated from this Ph.D. Program; and, all but one of those 14 graduates continue to serve on active duty in the Uniformed Services. ***There are currently 8 students on campus enrolled in Clinical Psychology, in years one through four of the program***.

In 1997, a second track in this Doctoral Program was developed, the *Medical Psychology Clinical Track*; ***this second track has matriculated four students***. The Medical Psychology Clinical Track was also reaccredited during meetings held in July of 2004. The Program Director can be contacted by e-mail at <*mfeuerstein@usuhs.mil*>, <*csimmons@usuhs.*mil>, or at <*www.usuhs.mil/mps/Psychology/index.html*>.

The Physician Scientist Training Program (Medical Doctor/Doctor of Philosophy Program). The Medical Doctor/Doctor of Philosophy Program at USU was formally established during 2002, to train outstanding, dedicated, uniformed officers as independent physician-scientists to carry out both clinical investigations and biomedical research in the basic sciences. ***There are currently two students in this program***. This program combines a rigorous basic science graduate curriculum with outstanding clinical training, and uniquely integrated Medical Doctor/Doctor of Philosophy activities that qualify students for careers in academic medicine, biomedical and clinical research, as well as clinical practice. The decision to enter this Program is formidable and requires the student to dedicate seven to eight years toward completing this challenging combination of medical and scientific training. Entering students must demonstrate a high level of preparedness, outstanding academic credentials, motivation, and commitment to the goals of the Program. An M.D./Ph.D. Advisory Committee acts as an Admissions Committee and oversees the M.D./Ph.D. students during their entire Program at USU. Matriculants to the Program must maintain all requirements necessary to be commissioned into the Uniformed Services throughout the Doctor of Philosophy portion of his or her training. The student will complete all required courses for the Doctor of Philosophy during the first and second years, to include some of the courses required for the first two years of the SOM curriculum. The Qualifying Examination for advancement to candidacy will be taken at the end of the second year and a doctoral thesis proposal must be subsequently submitted. The third year will be a research year. The transition phase begins after the third year and lasts two years. The student must complete all requirements to be commissioned in the Uniformed Services and attend Officer Basic Training; and, the student will complete the remaining requirements of the first and second years of SOM curriculum as a uniformed officer. The student will also continue to spend significant time on his/her thesis research, finalizing the thesis project, and preparing and defending his/her doctoral dissertation. The Office of Student Affairs will share supervision of the student with the Graduate Education Office during this phase of training. The final component of the program is the clinical phase during the sixth and seventh years; the student will begin full-time participation in the SOM curriculum under the guidance of the Office of Student Affairs and complete all required clinical rotations and clerkships. Subsequent to the completion of all requirements, the student will be awarded both the Medical Doctor and the Doctor of Philosophy Degrees and commissioned as an active duty officer (0-3) at commencement. Additional information can be accessed at <*admissions@usuhs.mil*> or <*graduateprogram@usuhs.mil*>.

The Master of Comparative Medicine - An Interdisciplinary Program. This interdisciplinary Graduate Program offers the Master of Comparative Medicine (MCM). The MCM Program falls within the scope of graduate programs defined as appropriate for USU and responds to a specified need of the Uniformed Services and fosters a positive collaborative relationship with USU, the National Institutes of Health, the United States Public Health Service, and the Department of Army Medicine. This program fulfills the obligation undertaken by USU in 1993 to build a graduate degree program in support of Laboratory Animal Medicine (LAM) residency training. The MCM Program is the redesignation of graduate courses approved by the Graduate Education Committee for the USU Master of Public Health Degree Program in the Department of Preventive Medicine and Biometrics. The Comparative Medicine faculty consists largely of non-billeted LAM veterinarians and other USU faculty who qualify for secondary faculty appointments in the MCM Program. The leadership of the Program is provided by the Academic Administrative Committee; this committee evaluates candidates for matriculation, approves graduate programs of study, counsels students in difficulty, and recommends students for the awarding of a degree on completion of an approved program of study.

To support the National Institutes of Health (NIH) in the joint education of Federal Laboratory Animal Veterinarians, at the August 2002 meeting, the USU Board of Regents endorsed, on second reading, the creation of a Master of Comparative Medicine Degree in support of the need of the United States Public

Health Service for the education of commissioned corps veterinarians in Laboratory Animal Medicine related subjects. The President of USU authorized the admission of commissioned corps and other uniformed officers to the study of Comparative Medicine in the 2002-2003 Academic Year. In 2004, NIH requested that civilians, nominated by NIH, be admitted to the study of Comparative Medicine in association with the Uniformed Services University Laboratory Animal Residency Program. The policy limiting admissions to graduate study for the Master of Comparative Medicine Degree to uniformed students was modified by the USU President to permit civilians nominated by the NIH and admitted to the USU Laboratory Animal Residency Program to matriculate in the program during the Summer of 2004. ***Two students were enrolled in the MCM Program during August of 2004***.

Three Interdisciplinary Biomedical Graduate Training and Research Programs Relevant to the Needs of the Uniformed Services. The research and development goal described in the USU Strategic Plan is to build, sustain, and publicize interdisciplinary research programs relevant to the needs of the Uniformed Services. Currently, there are three interdisciplinary research programs:

The Interdisciplinary Program in Neuroscience. This Ph.D. Graduate Program is supported by faculty members whose primary appointments are established throughout the SOM departments. It provides a seminar series and a flexible program of courses and research areas for graduate students and postdoctoral fellows who have strong training in the biological, behavioral, and/or physical sciences. Research areas strongly represented by faculty include: development, regeneration, and plasticity in the nervous system; molecular neurobiology; and, adaptive responses of the nervous system to stress, injury, and a changing environment. Integrated interdisciplinary instruction in the development, structure, function, and pathology of the nervous system and its interaction with the environment is also included. ***Three students entered the Program in August of 2004***. During USU's May 2004 Commencement Ceremonies, two individuals (both civilian) received Doctoral Degrees; one of those students received the Board of Regents Award for the Graduate Program in Basic Medical Sciences. The Program Director can be contacted by e-mail at <*rarmstrong@usuhs.mil*> or at <*www.usuhs.mil/nes/home.html*>;

The Interdisciplinary Program in Molecular and Cell Biology. An Interdisciplinary Program in Molecular and Cell Biology (including Genetics) has been developed to contribute to cross-disciplinary interactions and to develop the critical skills needed for data presentation and analysis; the program also includes a seminar series and a journal club, all of which support the Ph.D. Degree Program. This interdisciplinary Ph.D. Degree Program offers training to address many of the fundamental questions of modern biology ranging from protein-nucleic acid interactions to cytokines, growth factors, and developmental biology. Prospective students should have a background in biological or chemical sciences; study for the Master Degree Program is available to uniformed officers. Research areas include: molecular biology of lymphocyte interactions; host-pathogen interactions; cell surface, cytoplasmic and nuclear receptor signaling pathways; exocrine secretory processes; and, gene targeting in mice to include a transgenic mouse facility for targeted gene disruption using homologous recombination. ***Two students entered the Program in August of 2004***. One civilian received a Doctoral Degree and one uniformed officer received a Master Degree during USU's May 2004 Commencement Ceremonies. The Program consists of faculty mainly from six SOM departments. The Program Director can be contacted by e-mail at <*jharmon@usuhs.mil*> or at <*www.usuhs.mil/mcb/index.html*>; and,

The Interdisciplinary Emerging Infectious Diseases Program. This interdisciplinary Ph.D. training program is designed primarily for individuals who wish to devote their graduate training to the study of the pathogenesis, host response, and epidemiology of infectious diseases. This academic program combines formal course work with research training provided by an interdisciplinary EID faculty. The mission of the EID Graduate Program is to provide the scientific community with broadly-trained, outstanding scientists who can contribute significantly to the increasingly complex field of infectious disease mechanisms and pathogenesis. The training goals of the program include the provision of a rigorous academic environment wherein trainees learn to ask well-informed questions, develop the research laboratory skills to answer those questions, expand their capacity to think creatively and broadly, and acquire the skills necessary to communicate their ideas and results both orally and in writing. ***The importance of accomplishing these educational goals in the interdisciplinary area of infectious diseases research cannot be underestimated given the increasing threats of bioterrorism and the risks associated with emerging and re-emerging infectious diseases***. The EID Program has three academic tracks: Microbiology/Immunology; Pathology; and, Preventive Medicine/Parasitology. The research training emphasizes modern methods in molecular biology, cell biology, and interdisciplinary approaches. ***Nine students entered the EID Program in August of 2004*** (a more detailed description of the program follows). The Program Director can be contacted by e-mail at <*emetcalf@usuhs.mil*> or at <*www.usuhs.mil/eid*>.

Additional Participants in the Interdisciplinary Programs. Additional academic departments that contribute extensively to the teaching and research training of doctoral and master degree students through interdisciplinary programs include: Anatomy, Physiology and Genetics; Biochemistry; Microbiology and Immunology; Pharmacology; and, many clinical departments such as Medicine, Neurology, Pediatrics, and Psychiatry.

The Interdisciplinary Graduate Program in Emerging Infectious Diseases.

Background. In August of 1999, the USU Board of Regents gave its final approval to the Graduate Program in Emerging Infectious Diseases (EID), an interdisciplinary Ph.D. training program designed primarily for individuals who wish to devote their graduate training to the study of the pathogenesis, host response, and epidemiology of infectious diseases. Development of expertise in infectious diseases is timely and of global importance given that the National Institutes of Health have estimated that at least 22 pathogens have been newly recognized or have re-emerged in the past two decades. With the addition of the EID Program, the SOM has increased its capacity and commitment to instruct students in the biology of infectious diseases, especially in areas of interest to uniformed medicine.

Both Uniformed and Civilian Students Are Matriculants in the EID Program. The EID Program is designed for both uniformed and civilian applicants who wish to pursue a program of study leading to the Ph.D. Degree in one of three academic tracks: Microbiology/Immunology; Pathology; or, Preventive Medicine/Parasitology. In addition, this program provides an opportunity for uniformed pediatric and adult Infectious Diseases Fellows to complete the research components of their Fellowships in Infectious Diseases. The inaugural graduate student class of 7 full-time students matriculated in the Fall of 2000. Since then, 31 uniformed and civilian students have entered the Program. Approximately 14 percent of the current students are military officers in the Medical Corps. Three classes have completed Qualifying Exams and the entering Class of 2003 will take Qualifying Exams in June of 2005. Selection of the incoming EID

class for the Fall of 2005 is underway. The number of applicants for the EID Program continued to increase during the past year; and, the program continues to have more outstanding applicants than it has stipends.

The University offers a unique opportunity for students interested in graduate training in the field of emerging and re-emerging infectious diseases because of the synergistic educational opportunities offered by a blend of clinical and basic science faculty, as well as the combination of civilian and uniformed faculty. In addition to the University-based thesis advisors for the EID students, a source of thesis advisors also includes faculty researchers from some of the preeminent infectious diseases research Institutes in the country: the Walter Reed Army Institute of Research (WRAIR); the Naval Medical Research Center (NMRC); the United States Army Medical Research Institute of Infectious Diseases (USAMRIID); and, the Armed Forces Institute of Pathology (AFIP). Joint training opportunities with faculty members at these Institutes who have USU faculty appointments will permit the EID Program to fulfill its training goals.

Realization of the Extent to which Basic Science Advances in the Area of Infectious Diseases Can Affect the Current and Future Health of Individuals throughout the Military Health System. The Emerging Infectious Diseases Program also serves as an opportunity for the facilitation of educational and scientific interactions between students and faculty at USU who share common interests in the contemporary approaches to the study of molecular biology, pathogenesis, and host responses within the context of emerging and re-emerging infectious diseases. The establishment of this program at USU by the SOM formally recognizes the breadth of disciplines spanned by emerging infectious diseases and the extent to which advances in these areas can affect the current and future health of individuals within the United States and also in the global arena. This situation is particularly critical and important given the recent events of bioterrorism. ***As part of the EID Program, courses on the agents and effects of bioterrorism are offered. To date, this program is one of the only graduate programs in the country to offer formal training in this critical area.*** The implementation of an interdisciplinary and interdepartmental Program in Emerging Infectious Diseases will also broaden and enhance the overall educational objectives of USU and bring together faculty and students in a scientific community designed to stimulate and promote collaborative interactions. ***Since the USU SOM is one of the only schools of medicine that offers a formal program in EID, the University plans to be at the forefront of training broadly-based uniformed and civilian infectious diseases scientists for the future.*** As indicated above, the Program Director can be contacted by e-mail at <*emetcalf@usuhs.mil*> or at <*www.usuhs.mil/eid*>.

The Graduate Education Programs in Preventive Medicine and Public Health Address the Special Needs of the Military Health System.

The USUHS SOM Graduate Education Programs in Public Health, with their emphasis on community health, rank sixth in the Nation according to U.S. News & World Report's *2004 Edition of America's Best Graduate Schools* on the list of the top 10 community health master or doctorate programs."

- **The Honorable David S. Chu, Under Secretary of Defense for Personnel & Readiness,** Nomination Statement to Accompany the Award of the DoD Medal for Distinguished Civilian Service, Presented to the USU President on August 2, 2004.

The USU SOM Department of Preventive Medicine and Biometrics (PMB) offers programs of study leading to the Master of Public Health (MPH), Master of Tropical Medicine and Hygiene (MTM&H), Master of Science in Public Health (MSPH), Doctor of Public Health (DrPH), and Doctor of Philosophy (Ph.D.) in Medical Zoology and Environmental Health Sciences. Between 1983 and April of 2005, 520 individuals have earned the following graduate degrees: MPH - 457; MSPH - 8; MTM&H - 28; MS - 1; DrPH - 15; and, Ph.D. - 11. During 2004, 43 candidates in the PMB Department were awarded advanced degrees: 2 Doctors of Philosophy; 3 Doctors of Public Health; 37 Masters of Public Health; and, 1 Master of Science in Public Health. The PMB Department has continued to attract candidates for its graduate degree programs, which are of particular relevance to the Uniformed Services. Fifty students are currently enrolled in the Masters or Doctoral Programs. With its stated mission ...***to enhance and protect the health of members of the Uniformed Services by producing knowledgeable and highly skilled public health professionals***... the PMB Department has sought to be responsive to the needs of its customers in the DoD and the United States Public Health Service; and, this is reflected in the types of programs and training offered at USU. PMB has continued its collaborative educational agreements with the Walter Reed Army Medical Center Preventive Medicine Residency Program and Internal Medicine Fellowship Program, the Army Program for Training in Health Services Administration, the Army Laboratory Animal Medicine Program, the Navy Dental Research Institute Program in Dental Public Health, and the Indian Health Service Environmental Health Training Program. In addition, the PMB Department remains affiliated with the United States Army and Navy Overseas Biomedical Research Laboratories in Bangkok, Thailand; Rio de Janeiro, Brazil; Nairobi, Kenya; Cairo, Egypt; Jakarta, Indonesia; and, Lima, Peru. These overseas laboratories provide excellent opportunities for students in the MTM&H Program, which includes a six-week overseas clinical experience in tropical medicine. A research program also exists under an agreement with the Ministry of Health in Belize.

Demographics of the Graduate Program in Public Health. The class composition, as of April 2005, reflects a wide range of backgrounds and experience among the ***50*** students currently enrolled in either the Masters or Doctoral Programs. The ***27 Masters Degree students in the MPH and MTM&H Programs*** include 18 Physicians (17 uniformed officers and 1 civilian), 4 Veterinarians (2 Air Force Public Health Officers, 2 Laboratory Animal Medicine Residents), 1 Environmental Science Officer, 2 Aerospace Physiologists, 1 civilian (undergraduate biology major), and 1 civilian Nurse-midwife. The ***13 students in the MSPH Program*** include 7 Air Force Bioenvironmental Engineers, 3 Health Physicists (2 Air Force, 1 Navy), and 3 Industrial Hygienists (2 Army, 1 Navy). These programs are designed for students with at least three years of experience in a health-related field. Residents in General Preventive Medicine/Public Health (GPM) and Occupational and Environmental Medicine (OEM) take courses and meet all of the requirements for the MPH or MTM&H Degrees during year one of their residency training. Nine of the 27 MPH/MTM&H students are in the USU GPM or OEM Residency Programs. The ***ten Doctoral students*** include 6 Doctor of Public Health students/candidates (1 uniformed officer, 5 civilians) and 4 Doctor of Philosophy candidates (all uniformed officers). The Program Director can be contacted by e-mail at <*www.usuhs.mil/pmb/pmb.html*>.

The outstanding response of the Department of Preventive Medicine and Biometrics to the requirements of the Uniformed Services is documented by the following selected examples:

The Occupational Ergonomics Program. Recognizing the importance of occupational musculoskeletal injuries among military personnel and in response to the Army's request for specialty training in occupational ergonomics within the MPH Program, an area of concentration was established,

the Occupational Ergonomics Concentration in the Department of Preventive Medicine and Biometrics Master of Public Health Program, with faculty involvement from the Department of Medical and Clinical Psychology and the United States Army Center for Health Promotion and Preventive Medicine. The program offers courses in ergonomics, injury control, and health and safety. A number of students have completed their MPH research in this area. Recently, this program conducted a major study with significant health care implications for the military. The research, which focused on how the military manages low back pain, a major public health challenge, indicated that improved integration of ergonomic and psychosocial factors into direct health care actually improves health outcomes while cutting health care costs. *The Occupational Ergonomics Program is the only established graduate-level injury prevention program in the Department of Defense*;

The International Health Specialist (IHS) Program was initiated in 1999 under the guidance of **Lieutenant General Paul K. Carlton, Jr., Surgeon General of the Air Force**. Numerous After Action Reports (AARs) indicated that Humanitarian Assistance (HA) and Disaster Response (DR) missions would benefit if members of the Air Force Medical System (AFMS) received additional training. The goal of the IHS Program is to prepare regionally-focused military medical experts to support the Combatant Commander's Theater Engagement Plans. Individuals selected for the positions may attend short courses or degree programs, i.e., the Master of Public Heath (MPH) Degree with a regional, humanitarian assistance, disaster response, or international health focus. A memorandum of understanding was signed between the Office of the Air Force Surgeon General and USU during November of 2001, to design, test, and implement an educational and academic curriculum for the IHS Program; this memorandum is currently under revision.

The USU/SOM MPH Program is a 12-month program consisting of 60 quarter credit hours; in addition to the MPH requirements, the IHS students are required to take: International Health I; International Health II; Medical Anthropology; Joint Medical Operations and Humanitarian Assistance; Public Health Issues in Disasters; and, Introduction to Epidemiology II. Furthermore, IHS students must also select two additional electives from the following courses: Program Planning & Development; Principles and Practice of Tropical Medicine; Malaria Epidemiology and Control; Travel Medicine Practicum; and, Deployment Environmental Exposures. IHS graduates are expected to use their acquired quantitative and analytical skills in biostatistics and epidemiology to identify and measure population health needs and to investigate the impact of biological, environmental, and/or behavioral factors in solving public health problems. Each graduate understands the components, operations, and financing of health delivery services and has the administrative skills to plan, analyze, manage, and improve public health programs for the Uniformed Services. The graduates also understand the role that the United States military and other organizations and agencies play in addressing global health issues. Additionally, the graduates are able to apply public health principles in assessing international health needs and in the planning, conducting, and evaluating of international health-related activities and projects. ***Eight students have graduated with an MPH/IH concentration since 2003;***

The Ph.D. Program in Environmental Health Science was established in response to identified needs within the Uniformed Services. ***As of this time, two Ph.D. Degrees have been awarded, with the first granted in 2003***. Two active duty Naval officers are currently enrolled in the Ph.D. program; two active duty officers (1 Navy, 1 Army) will begin this Ph.D. Program in August of 2005;

The Master of Science in Public Health (MSPH) Program has graduated eight degree candidates between 2000 and April of 2005. Thirteen Navy, Air Force, and Army officers are currently enrolled in the Environmental and Occupational Health and the Health Physics specialties in the MSPH Program; two of these students are expected to graduate in 2005. The students and program faculty work closely with the Services and other Federal and international organizations to identify and address current needs for operational forces and emergency responders. Past and current projects have included the development of chemical warfare detection methods and instrumentation;

The Aviation Physiology Specialty Track in the Master in Public Health Program has been offered for the past five years. In addition to Aerospace Operational Physiology I and Aerospace Operational Physiology II, Human Factors in Aviation, and Introduction to Risk Communication, two electives are selected from among the following: Special Topics in Aerospace Medicine; Aerospace Medicine in the Modern Age; Aerospace Exercise Physiology; Aerospace Performance & Health; Joint Medical Operations and Humanitarian Assistance; and, Health Effects of Ionizing/Non-Ionizing Radiation. This course of study prepares students not only for successful negotiation of the Aerospace Physiology Society's Board Certification Process, but also for a career in the military as an Aerospace Physiologist. ***Since 1999, nine students have completed the program and three students have audited it.*** With an additional physiologist expected from the Air Force in 2005, further expansion of offerings will continue;

The TriService Advanced Military Tropical Medicine Course has been offered at USU, beginning in 1996, through the Summer of 2004. During 2004, 82 military medical officer students were trained in operational military medicine, consisting of four weeks of lectures and laboratories in the advanced diagnosis and treatment of tropical diseases. Approximately 70 lecturers provided over 106.5 hours of didactic instruction. ***To date, over 505 students have completed the course.*** One hundred and thirteen continuing medical education hours (CME) were awarded during the past year; and, the overseas field missions were attended by 50 medical officers (El Salvador - 10; Bolivia - 10; Peru - 11; Guyana - 11; Cairo - 6; and, Thailand - 2). ***A medical officer used the training received in this course to make the initial diagnosis of malaria during the outbreak of malaria in Joint Task Force Liberia personnel in 2003; an action that very likely prevented disability and saved lives***;

The Tropical Medicine and Travelers' Health Course is offered as a 12-week course during the Spring Quarter of the MPH Program. It includes lecture, seminar, laboratory and case-based curriculum approved by the American Society of Tropical Medicine and Hygiene and leads to eligibility for the qualifying examination in Tropical Medicine and Travelers' Health. ***To date, 37 uniformed medical officers and 14 civilian physicians have completed the course***;

The Diagnostic Parasitology Course is offered as a series of lectures and hands-on laboratory sessions for individuals wishing to study parasitic infections in humans. Uniformed and civilian medical technologists and physicians from all parts of the world have completed this course. Participants for the course have included: United States Embassy personnel from Asian and African countries sent by the United States Department of State; members of the Peace Corps; a medical doctor from the Japan Ground Self Defense Force; and, civilians from various foreign and domestic health related organizations. ***Since 1988, over 300 individuals have taken the course, to include 9 individuals who took the course during 2004***; and,

Medical Executive Skills Program (MedExec) was designed in response to a Congressional mandate that current and prospective DoD health care leaders receive training in health care management and administration. Both face-to-face and distance learning are included in the Program. In 2004, three modules were added to the MedXellence Distance Learning Program: Patient Feedback; Executive Management of Clinical Investigation Programs; and, HIPAA. Modules in financial management and modeling, as well as family-centered care, were added to the MedXellence on-site classes. ***Integrating Clinical and Managerial Decisions to Improve Population Health***, a five-day in-class portion of the MedExec Program, is held five times each year throughout CONUS and Atlantic and Pacific TRICARE Regions. ***To date, 37 sessions have been held in the TRICARE Regions and over 1,000 senior officers have been trained for the MHS***.

(See Section II of this document, *The USU SOM Department of Preventive Medicine and Biometrics and the Centers for Preventive Medicine and Public Health*, for further discussion.)

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ACADEMIC REQUIREMENTS AND ACCREDITATION

Academic Excellence and Uniformity Ensure Accreditation. To ensure academic excellence within the Graduate Education Programs, in addition to the oversight and reviews provided by the Graduate Education Committee and the academic departments, a series of requirements for the Doctor of Philosophy Degree (Ph.D.) have been established. Some departments have established additional requirements. The minimum residency requirement for the Ph.D. is 36 months of full-time study; but, it may be less if a student holds an advanced degree. All requirements must be completed no later than seven years after matriculation. Formal course work, participation as teaching assistants in the SOM teaching programs, and directed research activities are all components of a student's predoctoral program. Full-time status is defined as 12 or more credit hours each quarter. The minimum course work requirement for the doctorate is 48 graded credit hours and the minimum for total academic credit is 144 credit hours. A qualifying examination (comprehensive examination) is conducted and graded by a committee of graduate faculty. A written dissertation based on the original experimental research, or an alternative thesis format, differentiated by the materials and methods section and results section, in the form of acceptable peer-reviewed publications is required. A total of 24 credit hours of graduate course work taken within the last 5 years at other academic institutions, either before admission to the SOM or during study at USU, may be transferred, provided such courses are equivalent to courses at the SOM and are approved by the graduate faculty of the specific program and the Graduate Education Committee. Some departments' Ph.D. Programs of Study encompass an independent project whereby the student will receive a Master Degree while pursuing the Ph.D. Requirements are designed to ensure academic excellence and uniformity in degree programs across the departments. An approved thesis is required of all candidates for the Master of Science Degree. A thesis is not required for the Master of Public Health or the Master of Tropical Medicine and Hygiene; but, an independent project paper must be completed to fulfill requirements for these degrees.

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The Graduate Education Committee Reviews Ensure the Quality of the Programs. Each Graduate Education Program is managed by a Program Director. The Graduate Education Committee (GEC) is composed of the Graduate Program Directors, representatives from the Basic Science Departments, the Associate Dean for Graduate Education, the Vice President for Teaching and Research Support, two members of the faculty appointed by the Dean, SOM, and a Graduate Student Representative. The GEC is responsible for periodic reviews of the policies and procedures of each Graduate Program, reviews of academic records and other aspects of graduate student standing, and the monitoring of the overall quality of graduate student life at the University. In addition, all graduate courses must be submitted to the GEC for consideration and approval prior to offering (***over 492 individual graduate education courses have been established by the participating faculty***). Significant changes to previously approved courses must also be considered by the GEC prior to incorporation. Departmental faculty annually review and update the graduate course offerings for each program. Some departments rely upon SOM course offerings for their Graduate Program curricula, supplemented by graduate course offerings. Some SOM courses have been subdivided into individual graduate offerings, allowing graduate students to take appropriate parts of a larger course. The GEC makes recommendations on its areas of responsibility to the Dean, SOM, through the Associate Dean for Graduate Education. Following the 1999 SOM Self Study, no major revisions were recommended for the Graduate Education Programs. The recent Self-Study for the Middle States Commission on Higher Education points out that "the USU graduate programs have continued to mature and develop with new interdisciplinary programs (e.g., Emerging Infectious Diseases) and programs targeted toward military needs (Undersea Medicine, Aviation Physiology) being initiated in the past five years.

These programs take advantage of unique faculty expertise and other resources and opportunities unique to a Federal health sciences university. In addition, the Office of Graduate Education implements a regular formal process of external review of its graduate programs to assure that high quality programs are fostered and maintained" (*VIII, Graduate Education in the Biomedical Sciences and Public Health*, Subcommittee Report, Middle States Commission on Higher Education Self Study, submitted for the March 30-April 2, 2003 Site Visit, page 8).

Within the last several years, each of the established Graduate Degree Granting Programs, subsequent to the preparation of a detailed self-study, was site-visited and reviewed by an external team of graduate educators. During the initial review cycle, the Neuroscience Program, Programs in the Medical and Clinical Psychology Department, the Anatomy, Physiology and Genetics Department, and the Pharmacology Department were evaluated. In 2001, the Molecular and Cell Biology Program and the Programs of the Pathology Department and the Department of Microbiology and Immunology were externally reviewed. Constructive improvements to the Graduate Education Programs have resulted from these external reviews. Newer programs, including the Emerging Infectious Disease Program and the Master of Comparative Medicine Program will be externally reviewed within the next few years. This external review process is intended to bring attention to the strengths and weaknesses of the programs and to appropriately focus institutional resources for graduate education.

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Accreditation of USU Graduate Education Programs. Accreditation of the USU Graduate Education Programs is granted by four entities: the Middle States Commission on Higher Education; the Council on Education for Public Health; the American Board of Electronic Technology; and, the American Psychological Association.

The Middle States Commission on Higher Education. The Graduate Education Programs, as an integral part of the SOM and the SOM Office of Graduate Education, are reviewed by the Middle States Commission on Higher Education; ***the Graduate Education Programs are included in the recent ten-year accreditation granted by the Middle States Commission on Higher Education through 2013***.

The Council on Education for Public Health. Given the mission of USU and the importance of prevention to uniformed medicine, the USU SOM Department of Preventive Medicine and Biometrics (PMB) is a large and vital part of the medical school and the University. In addition to accreditation by the Middle States Commission on Higher Education as a Department within the SOM, the PMB graduate programs are nationally accredited by the Council on Education for Public Health (CEPH). CEPH is the recognized accrediting body for Schools of Public Health and Graduate Programs in Community Health Education and Preventive Medicine/Community Health. The PMB Graduate Programs were initially accredited by CEPH in 1985 and were last reviewed in 1998. As part of the CEPH report following the last site visit in June of 1998, it was noted that "*the values of the institution and the philosophy of military medicine are an exceptionally good fit with the values and philosophy which underlie public health and preventive medicine. The program has strong ties to the military community, both locally and worldwide, and the instructional programs have particular relevance to the needs of the Uniformed Services to which the program graduates will return after their training. The curriculum is quantitatively-oriented and rigorous*." The PMB Graduate Programs are fully accredited through 2005. Currently, the faculty is in the final stages of a self-study and is scheduled to host site visitors in November of 2005.

The PMB Department has continued to embrace on-going program review and evaluation for continuous quality improvement, including efforts to identify measurable program outcomes. In addition to the rigorous, quantitatively-focused curriculum (60 credit hours), students are required to complete a 108-hour practicum experience, as well as an independent project for the MPH or MTM&H Degrees. Greater emphasis has been placed on basic research methodology and students are encouraged to present the results of their independent projects at scientific meetings and to prepare manuscripts for submission to peer-reviewed journals. The **Director, Graduate Programs, Colonel Gary D. Gackstetter, DVM, MPH, Ph.D., USAF, BSC, Associate Professor and Vice Chair for Graduate Education, PMB Department, USU SOM,** can be contacted by e-mail at <*ggackstetter@usuhs.mil*> or at <*www.usuhs.mil/pmb/pmb.html*>.

ABET Certification for the Division of Environmental and Occupational Health. The USU SOM Department of Preventive Medicine and Biometrics (PMB) submitted an application for accreditation from the ABET, a graduate engineering accrediting board, in support of PMB's Environmental and Occupational Health Division Industrial Hygiene and Health Physics specialty tracks in October of 2003; ***the review process was completed in July of 2004 and the program received national accreditation/certification for five years.***

Clinical Psychology Program Receives Accreditation. The Department of Medical and Clinical Psychology's Clinical Psychology Ph.D. Program has enjoyed on-going accreditation from the American Psychology Association's Committee on Accreditation. The program received its initial accreditation in record time and has since been listed annually among accredited programs of professional psychology in the American Psychologist. The initial site visit report stressed that *the curriculum is clearly articulated and appropriately sequenced, and the practicums are organized. Well-qualified and accessible, the faculty provides excellent role models for students. Also commendable is the program's commitment to systematic self-evaluation*. ***The Clinical Psychology Ph.D Program recently had its second review by site visitors on behalf of the APA; the re-accreditation process was a positive one. Formal notice of re-accreditation for a maximum term of 7 years was dated August 16, 2004; the next site visit is scheduled for 2011.*** The APA Accreditation Committee found that *the program is based on a solid scientific foundation of psychology and the science of clinical practice*. Doctoral programs and research in this area emphasize the application of psychology to behavioral medicine and to clinical psychology. Study in applied areas on the interface of health, psychology, and behavior, and in the basic areas of psychology is offered. This American Psychological Association-accredited Clinical Psychology Ph.D. Program is offered to selected members of the Uniformed Services. ***A second track in this Doctoral Program was developed in 1997, the Medical Psychology Clinical Track; the new track was also evaluated during the recent re-accreditation visit by the APA and also received reaccreditation for an additional 7 years with the next site visit to be held in 2011***. The Program Director can be contacted by e-mail at <*mfuerstein@usuhs.mil*>, <*csimmons@usuhs.mil*>, or at <*www.usuhs.mil/mps/Psychology/index.html*>.

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ACADEMIC RESOURCE FOR THE UNIFORMED SERVICES

The Development of Independent Scholarship. The goal of graduate study in the biomedical sciences and public health at USU is to develop independent scholarship, originality, and competence in research, in teaching, and in professional service to the Nation. The Graduate Education Programs are designed for outstanding students with a strong commitment toward permanent careers in the basic medical sciences and, potentially, in the Federal Government. Within each Ph.D. Program, an individualized course of study is designed for each student to meet his or her specific needs **(***over 492 individual graduate education courses have been established by the participating faculty at USU*). The graduate programs are open to qualified civilian and uniformed personnel. Students accepted for graduate study are generally enrolled on a full-time basis. They assist in the performance of the instructional and investigative efforts that are carried out at the University. Active duty military and uniformed services personnel must obtain the approval and sponsorship of their parent Service; they also incur an obligation for additional service, in accordance with the regulations of their parent Services that govern sponsored graduate education. Most of these officers will complete careers in their parent Services and use their graduate education and training to fulfill specific assignments for their Surgeons General and the Military Health System.

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The Faculty of the Graduate Education Programs Ensure an Individualized Program Built on Quality Research and Instruction. All Graduate Programs have sufficient full-time faculty to accommodate the present advising needs for the students in the Graduate Education Programs. Most Graduate Programs reported in recent SOM Self-Studies that additional students are desired and could be accommodated without placing undue demand on existing faculty resources. All Graduate Programs have a faculty/student ratio that provides excellent opportunities for continuous interaction; and, large numbers of both basic science and clinical science faculty members are involved in the didactic and research training of USU graduate students. ***The November 15, 2004 USU Faculty Listing reported 195 civilian and 110 uniformed faculty members in the USU SOM; and, over 150 of those 305 SOM faculty members were actively supporting the Graduate Education Programs, which currently include approximately 160 graduate education students.*** Formal occasions for faculty and graduate student interactions occur through seminars, journal clubs, research laboratory rotations, and courses; opportunities abound for students to interact with faculty on an informal and regular basis.

A faculty actively involved in research is critical to the success of the Graduate Education Programs. Through their research activities, high quality faculty members maintain themselves at the cutting edge of their various disciplines. Thus, they contribute to the research mission of the SOM by making advances in medically related research; and, they are also better equipped to function as *state-of-the-art* educators. The productivity of the USU SOM research faculty, the quality of their research, and their ability to successfully compete for extramural and intramural funding are all indications of the success of the USU research mission. The presence of strong Graduate Education Programs contributes to this success and is essential not only for the continued growth of the research activities at the University, but also for the future of medical research and education. The SOM Graduate Education Programs are clearly recognized by the institution as essential to achieving success in the University's research mission. Departments with active and vigorous graduate programs show high research productivity. USU graduate education students regularly present their research at professional meetings and publish their findings in peer-reviewed scientific journals, thus publicizing and promoting the University's reputation. The University's reputation is also enhanced by the success of its graduates to secure postdoctoral positions in highly regarded public and

private research laboratories, followed by faculty appointments or positions of responsibility in government research, regulatory agencies, and private industry.

2004 School of Medicine Biomedical Graduate Educator Award. As part of the 2004 USU Graduation Ceremonies, **William E. Gause, Ph.D., Department of Microbiology and Immunology,** received the Biomedical Graduate Educator Award. This award recognizes the outstanding contributions of a member of the USU biomedical graduate faculty in the School of Medicine. Doctor Gause has demonstrated commitment to graduate education through his many extensive and outstanding contributions to the education of students in the SOM graduate doctoral training programs. His skilled, personable, and interactive training style has positively affected each of the USU students who have had the opportunity to interact with him. His excellence in mentoring graduate students is clearly shown by the numerous achievements and successes of his doctoral dissertation students.

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Research Facilities Are Well Equipped and Support the Graduate Education Programs. The Graduate Education Programs are conducted in facilities on the campus of USU. Well-equipped, state-of-the-art laboratories are available to support the wide variety of research projects directed by the faculty in the basic medical sciences. Individual laboratories and core facilities are well-equipped with the instrumentation required for modern biomedical research. Special resources include the following: high resolution transmission and scanning electron microscopes; video-based computer graphics and confocal microscopy; a central resource facility providing custom synthesis of oligonucleotides and peptides; biohazard containment laboratories; a centralized animal resources facility; a medical library; computer support to include orientation to web sites and the Internet; and, a learning resources center. Students can enhance their educational experiences at USU through collaboration with the National Institutes of Health, the Library of Medicine, the Naval Medical Research Command, the Walter Reed Army Institute of Research, the Armed Forces Institute of Pathology, the Armed Forces Radiobiology Research Institute, the National Institute of Standards and Technology, numerous biotechnology companies, and other major institutions in the area.

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The 2004 Graduate Student Research Colloquium. The Graduate Student Research Colloquium was begun in 1980 to promote scholarly interchange between graduate students and the academic community at USU and to recognize the research achievements of USU graduate students. The 24th Annual Graduate Research Colloquium, sponsored by the graduate faculty and students, featured six oral presentations and 20 poster presentations of original research conducted by 26 graduate students. *The John W. Bullard Colloquium Lecture* followed the student presentations.

The 2004 Bullard Colloquium Lecture was presented by **James E. Darnell, Jr., M.D., Vincent Astor Professor Emeritus, Rockefeller University,** on *Transcription Factors and Cancer*. Doctor Darnell has been a leader in researching how genes and molecular signaling control cell processes. More recently, his many scientific achievements include the discovery of a pathway by which *molecular cues* on the outside surface of a cell signal the genes in that cell's nucleus to take specific actions. The relevance of Doctor Darnell's gene regulation research to human health is illustrated by his discovery of a cell-signaling route called the *JAK-STAT Pathway*, a pathway that has yielded important new insights into the biology of human cancers.

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STUDENT AFFAIRS

1981 - **Stephen Huot is the first basic science graduate program student to be awarded a Ph.D. in physiology** (as of April 2005, a total of 266 Doctoral Degrees have been granted)**.**

2004 - **USU holds its 25th Commencement Exercise on May 15 at the Daughters of the American Revolution Constitution Hall in Washington, D.C. More than 3,587 medical diplomas, 833 basic science doctoral and masters degrees** (845 as of April 2005)**, and 231 nursing degrees have been awarded to date.**

- **Ms. Sharon Willis, USU Office of Alumni Affairs,** USU Medicine, *USU Through the Years*, Summer 2004.

Selection of Students. A formal application is required of all persons seeking admission to graduate study at USU. Applications and all supporting documentation must be received no later than January 15th for programs beginning in the following August; there is no application fee. Applicants must have completed a Baccalaureate Degree Program from an accredited academic institution and have taken the Graduate Record Examination (GRE) before matriculation at USU. The GRE may be waived if the applicant possesses an advanced academic degree. All graduate students are admitted to a program of graduate study on a full-time, or part-time, basis and assist in the teaching and research programs that are integral components of the Graduate Education Programs in which they are enrolled.

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Demographics and Qualifications of the Student Body. Fifty-two students matriculated into the Graduate Programs of the SOM during August of 2004. Of those, 23 were admitted to Ph.D. Degree Programs and 29 were admitted to Masters Degree Programs. Of the Ph.D. matriculants, the greatest number enrolled in the interdisciplinary research programs: Emerging Infectious Diseases Program - 9 students; the Neuroscience Program - 3 students; and, the Molecular and Cell Biology Program - 2 students. Departmentally-based programs in Medical and Clinical Psychology enrolled 6 students; Preventive Medicine and Biometrics enrolled 2 students; and, Pathology enrolled 1 student. The 29 matriculating students in Masters Degree Programs enrolled in the graduate programs of the Department of Preventive Medicine and Biometrics (27) and the Master in Comparative Medicine Program (2).

The 160 students currently enrolled in the Doctoral and Masters Degree Programs at USU come from all parts of the country, from all types of undergraduate academic institutions, and from many different career-paths. Of these individuals, 114 are Ph.D. or DrPH students, while 46 are Master Degree candidates. Approximately 45 percent of the graduate students attend USU as active duty members of the Uniformed Services, to include the United States Army, Navy, Air Force, and Public Health Service. Most students are enrolled on a full-time status; however, a few exceptional students are accepted into degree-granting programs as part-time students. The MPH Program is generally completed in one year (as a full-time student); the Masters of Science Degree Programs take approximately two years to complete; and, the Doctoral Programs take from three to seven years to complete (four to five years is the average time for a Ph.D).

Active-duty uniformed personnel accepted to study full-time must have the consent and sponsorship of their parent Services and incur a service obligation to the United States Government after the completion of their graduate training programs. The University offers USU-supported stipends on a competitive basis to civilian doctoral students who are United States Citizens or resident aliens. Forty-nine of the civilian Ph.D. students receive USU-supported stipends; other civilian doctoral students receive stipend support from other sources.

Applicants must have completed a Bachelor Degree from an accredited academic institution prior to enrollment; they must arrange for: official transcripts of all prior college-level courses; GRE scores taken within the last two years; and, letters of recommendation from three individuals who are familiar with their academic work. Information and application forms can be downloaded from <*http://www.usuhs.mil/geo/gradpgm/index.html*>.

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25th Commencement - May 15, 2004. Approximately 2,000 family members and guests attended the 25th Commencement Ceremony at the Daughters of the American Resolution Constitution Hall in Washington, D.D., on May 15, 2004. During the graduation ceremony, the following School of Medicine Graduate Education Programs were recognized in the commencement program: 10 Doctor of Philosophy Degrees; 3 Doctor of Public Health Degrees; 1 Master of Science Degree; 2 Masters of Tropical Medicine and Hygiene Degrees; 31 Masters of Public Health Degrees; and, 1 Master of Science in Public Health Degree.

The USU Graduate Education Programs Have Granted a Total of 845 Degrees. Since the establishment of the USU SOM Graduate Education Programs in 1977, through April of 2005, the Graduate Education Programs have granted a total of 845 Doctoral and Master Degrees in the Biomedical Sciences and Public Health: 251 - Doctor of Philosophy; 15 - Doctor of Public Health; 82 - Masters of Science; 457 - Masters of Public Health; 8 - Masters of Science in Public Health; 28 - Masters of Tropical Medicine and Hygiene; and, 4 Masters of Military Medical History. During 2004, 38 uniformed officers received advanced degrees (34 Masters Degrees and 4 Doctoral Degrees).

The 2004 Graduate Student Award. The Graduate Student Award was presented to **Joshua Murti, Ph.D.** This award was presented during the 2004 USU Graduation Ceremonies to recognize this graduating student for his outstanding and exceptional service rendered to the student body, medical school, and the University. During the graduation ceremonies, Mr. Murti received a Doctor of Philosophy Degree for his work in the Molecular and Cell Biology Graduate Program. This award recognizes Doctor Murti's academic achievements, participation in the academic and intellectual life of the community, and contributions to the welfare and morale of other graduate and medical students.

The Henry M. Jackson Foundation Fellowship in Medical Sciences Awards. The Henry M. Jackson Foundation inaugurated three Foundation Fellowships to provide stipend and travel support for outstanding civilian graduate students during the terminal year of their programs of doctoral study at the Uniformed Services University. The recipients of the HMJ Fellowships, acknowledged at the 2004 Commencement, were **Andrea McCoy, Molecular and Cell Biology Graduate Program, Tyler Best, Neuroscience Graduate Program,** and **Kathryn Roecklein, Department of Medical and Clinical Psychology Graduate Program.**

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ALUMNI AFFAIRS

Overview of the Preparation of Graduate Students for Appropriate Career Opportunities. (The following is taken from the *VIII, Graduate Education in the Biomedical Sciences and Public Health*, Subcommittee Report, Middle States Commission on Higher Education Self Study, submitted in preparation for the 2003 Site Visit, pages 3-5.)

Graduates of USU Ph.D. Programs, as with Biomedical Ph.D. Programs everywhere, usually enter post-doctoral programs immediately after graduation, and many take a second post-doctoral position before finding a career level position. Program Directors and the major advisors of most USU graduates are generally aware of the first appointment obtained by graduates, but have much less complete information about the graduates' activities subsequent to their first postdoctoral appointment. Informal discussion with Program Directors suggests that USU graduates appear to have no difficulty in obtaining good post-doctoral appointments. Many of the post-doctoral appointments taken up by USU graduates are obtained in response to letters to USU faculty mentors from schools seeking USU graduates for position vacancies. These letters reflect the high standing in their professional field that many USU faculty mentors hold; they also indicate that USU SOM Graduate Education Programs are regarded as a source of productive post-doctoral fellows.

Following post-doctoral appointments, USU Program Directors are aware that graduates of USU Doctoral Programs enter a wide range of positions. The University's location in Bethesda, Maryland, leads to appointments in government research laboratories. Thus, of 25 Ph.D. graduates of the Microbiology and Immunology Program whose positions were known at five years after graduation, 32 percent (9) held career positions in Federal or state research laboratories or research regulatory and management agencies; and, 55 percent (11) of the graduates of the Medical Psychology Program held similar appointments. Graduates of the smaller graduate programs also held appointments in government research and regulatory agencies. These positions are held in a diverse range of research, research management, or regulatory affairs positions within Federal or state research organizations. They include the National Institutes of Health and the Virginia State Department of Agriculture and Consumer Services Disease Center located in Ames, Iowa, and the Virginia State Department of Agriculture and Consumer Services in Warrenton, Virginia. Others have positions with non-profit agencies, such as the American Red Cross in Rockville, Maryland; the Henry M. Jackson Foundation for the Advancement of Military Medicine (with graduates located as far afield as the United States Government HIV/AIDS Program in Uganda); and, with the Scripps Research Institute in La Jolla, California.

Several USU graduates hold appointments as civilians with DoD clinical and research organizations, including the Walter Reed Army Medical Center (WRAMC); the Walter Reed Institute of Research; the United States Army Medical Research Institute of Infectious Diseases located in Frederick, Maryland; the Aberdeen Proving Ground; the Army Medical Department Center and School at Fort Sam Houston, Texas; and, other DoD facilities. Uniformed graduates of the USU Graduate Programs have a commitment to continued service in the Uniformed Services, where they often hold a variety of positions with research, research management, teaching, or clinical responsibilities. A few hold educational positions in military establishments. Graduates of both the Pharmacology and Neuroscience Graduate Education Programs have held academic positions in the United States Army Nurse Anesthesia Training Programs at WRAMC; San Antonio, Texas; and, Hawaii. More than 90 percent of the graduates of the Master of Public Health Program (a program that largely accepts uniformed applicants) return to their individual Services and continue to hold public health related positions.

A number of USU Ph.D. graduates have entered medical school. Some are still in training, with two or three currently holding internships at various hospitals. A few are already in career positions. A Pathology Ph.D. graduate, trained in medicine at Johns Hopkins, is now the Chief of Neurosurgery at the William Beaumont Army Medical Center located in El Paso, Texas. And, a Microbiology graduate is now a pediatrician at the Greater Dundalk Medical Center in Baltimore, Maryland.

A fairly high percentage of USU graduates have moved from post-doctoral appointments to academic positions; 43 percent of the Microbiology and Immunology Graduate Education Program graduates and 16 percent of Medical Psychology Graduate Education Program graduates hold appointments in academic departments at the level of research associate or higher, with many in tenure track positions. Graduates from the Clinical Psychology, Pathology and Pharmacology Graduate Education Programs also hold appointments in the professorial track. These academic appointments are held at well recognized institutions, including the Johns Hopkins University School of Medicine, the University of Maryland School of Medicine, the Yale University School of Medicine, the Albert Einstein School of Medicine in New York, the Mahindol University in Bangkok, as well as USU. Most of the academic appointments are in medical schools, but USU graduates are also represented on non-medical faculties such as the Department of Psychology at Ohio University, the Department of Zoology at Louisiana State University, and the Department of Biological Sciences at California State University located in Sacramento, California. And, a Microbiology graduate holds an assistant professorship at the Northwestern School of Law, at the Lewis and Clark College located in Portland, Oregon.

A smaller, but not insignificant, percentage of USU Graduate Program alumni have taken up positions with research organizations in the private sector of the economy, usually after having first completed at least one post-doctoral position in an academic department. Alumni of the Pharmacology and the Pathology Graduate Education Programs hold research positions at Abbott Laboratories; and, alumni of the Microbiology Graduate Education Program hold positions with the Pharmacia Corporation located in Kalamazoo, Michigan, and with SunModics, Inc., located in Eden Prairie, Minnesota. A Biochemistry Graduate Education Program graduate holds a position with Curragen, a biotech company; and, a Pharmacology Graduate Education Program graduate has just left a major drug company to join an, as yet unnamed, start-up drug development biotech company. A few graduates have taken up positions outside of their areas of initial training. A Neuroscience Graduate Education Program graduate is a Master Control Operator in Ontario, California, for a national radio station group; a Microbiology Graduate Education Program graduate is a partner in a law firm; and, a Biochemistry Graduate Education Program graduate is a consultant with Booz-Allen Hamilton, Inc., a law firm. A few graduates have indicated that they are self-employed or working in their homes.

While the USU Graduate Education Program Directors do not have complete statistics on the careers of their graduates, the brief survey described above suggests that alumni of the USU Graduate Programs are reasonably successful at obtaining and advancing in career level positions in their chosen disciplines. Since USU is a DoD institution, and part of its mission is to advance uniformed medicine through research, it is particularly gratifying to note that a sizeable number of USU Graduate Program alumni hold career level appointments in DoD research, clinical, and educational agencies. Furthermore, a sizeable group of other graduates occupy responsible positions in other Federal government agencies concerned with the general maintenance of the Nation's health. The career successes of alumni of the USU Graduate Education Programs in public service and the Uniformed Services indicate that the University is moving forward in its goal of becoming a national health university dedicated to government service.

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Selected Achievements of USU Graduate Degree Program Alumni.

Class of 1984.

Doctor Diane Reddy, Vice Chair, Department of Psychology, University of Wisconsin, Milwaukee, USU Graduate Program Class of 1984, received her Doctoral Degree in Medical and Clinical Psychology from USU in 1984; she has been recognized for her position as Department Vice Chair at the University of Wisconsin.

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Class of 1986.

Doctor Raymond Fleming, Chair, Department of Psychology, University of Wisconsin, Milwaukee, USU Graduate Program Class of 1986, received his Doctoral Degree in Medical and Clinical Psychology from USU in 1986; he has been recognized for his position as a Department Chair at the University of Wisconsin.

James Remenick, J.D., Ph.D., Partner, Law Firm of Powell Goldstein L.L.P., Washington, D.C., USU Graduate Program Class of 1986, received his Doctoral Degree in Microbiology and Cell Biology from USU in 1986. On January 11, 2005, the Law Firm of Powell Goldstein L.L.P. announced the expansion of its Intellectual Property (IP) and Biotechnology practice with the addition of James Remenick, Ph.D., as a partner in the firm's Washington office... ***Jim is a recognized leader in the IP legal community and will significantly enhance our IP efforts in Washington, particularly in the biotechnology area. Dr. Remenick's practice involves all aspects of intellectual property protection and enforcement including litigation, prosecution, licensing, opinions, consulting and counseling. His clients have included companies ranging in size from start-ups to multinational corporations, as well as research institutions, universities and investment houses. His work has included fields as wide-ranging as drug development, immunology, genomics, diagnostics, plant pharmaceuticals, organics recycling and energy conservation, to name a few. Dr. Remenick also has significant experience in trademark and copyright protection and enforcement and will be looking to further expand both areas for the Firm. In conjunction with his work as an attorney, Dr. Remenick was a member of the U.S. Defense Science Board subcommittee on the Defense Against Biological Attacks. After the 2002 anthrax attacks on the U.S. Capitol, Dr. Remenick served as an advisor in a subsequent investigation. Dr. Remenick also serves as a consultant to the intellectual property committee of The Henry M. Jackson Foundation for the Advancement of Military Medicine, and obtained a security clearance from the U.S. Department of Defense to work on classified matters. Dr. Remenick received his Ph.D. from the Department of Microbiology of the Uniformed Services University of the Health Sciences, and spent four years as a medical researcher and an American Cancer Society post-doctoral fellow at the Laboratory of Molecular Virology of the National Cancer Institute at the National Institutes of Health.***

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Class of 1988.

Kevin Tonat, Dr.Ph., USU Graduate Program Class of 1988, who received his Master of Public Health Degree from USU, retired from the United States Public Health Service and now serves as the Executive Science Officer for Cosmos Alliance Management, based in Washington, D.C.

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Class of 1990.

Lawrence Sung, Ph.D., J.D., USU Graduate Program Class of 1990, who received his Doctoral Degree in Microbiology and Cell Biology from USU, is currently serving as a lawyer with the Washington, D.C. based firm of Preston Gates & Ellis, L.L.P. Doctor Sung specializes in intellectual property litigation, life sciences, patents, technology and intellectual property, and technology transfer and commercialization.

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Class of 1991.

Taras Masnyk, M.D., Ph.D., USU Graduate Program Class of 1991, who received his Doctor of Philosophy Degree in Pathology from USU, left the Army where he served as the Chief of Neurosurgery at the William Beaumont Army Medical Center in El Paso, Texas, and returned to Illinois for civilian practice.

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Class of 1993.

Gerard P. Andrews, Ph.D., USU Graduate Program Class of 1993, who received his Doctoral Degree in Microbiology and Cell Biology from USU, left the Army and is now serving as the Task Area Director for Product Development in the Bacteriology Division of the United States Army Medical Research Institute of Infectious Diseases (USAMRIID) at Fort Detrick, Maryland.

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Class of 1994.

Commander Margaret A. K. Ryan, MC, USN, MPH, Director, DoD Center for Deployment Health Research, Naval Health Research Center, San Diego, California, USU Graduate Program Class of 1994, who received a Master of Public Health Degree from USU, heads a team at the Naval

Health Research Center that has worked on several initiatives to support, directly or indirectly, those uniformed personnel deployed to Operation Iraqi Freedom. Those initiatives include: equipping Naval Environmental Preventive Medicine Unit 5 and several ships (now forward deployed) to better detect and rapidly diagnose pathogens causing respiratory illness in service members; assisting with the development of augmented post-deployment health assessments, as required by the Office of the Assistant Secretary of Defense, Health Affairs; partnering with the Centers for Disease Control (CDC) to address health concerns related to smallpox and anthrax vaccinations; and, standing ready to expeditiously assess the epidemiology of post-deployment health concerns, as required.

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Class of 1995.

CAPT Maura Emerson, MPH, MC, USN, Force Medical Officer, Military Sealift Command, Washington Navy Yard, USU Graduate Program Class of 1995, who received a Master of Public Health Degree from USU, is responsible for smallpox and other immunization tracking programs for all of the military and civilian contractors in the Military Sealift Command. CAPT Emerson also received her M.D. Degree from USU in 1988.

Tina McIntyre, Ph.D., USU Graduate Program Class of 1995, who received a Doctoral Degree in Pathology, is now the Administrator for the Inflammation and Innate Immunity Study Section and Immunity and Host Defense Study Section at the Center for Scientific Review, National Institutes of Health, in Bethesda, Maryland.

CAPT H. Jeffrey Yund, USN, USU Graduate Program Class of 1995, who received a Master of Public Health Degree from USU, is the Preventive Medicine Officer at the Headquarters of the Marine Corps where he serves as the Principal Advisor for Deployment Health Surveillance and the Smallpox and Anthrax Immunization Programs. CAPT Yund recently stepped down as the Chair of the Joint Preventive Medicine Policy Group.

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Class of 1996.

Lieutenant Colonel Jeffrey Adamovicz, USAF, Ph.D., USU Graduate Program Class of 1996, who received a Doctoral Degree in Microbiology and Cell Biology from USU, serves as the Chief of the Bacteriology Division of the United States Army Medical Research Institute of Infectious Diseases at Fort Detrick, Maryland.

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Class of 1997.

James (Jay) Phillips, Ph.D., USU Graduate Program Class of 1997, who received a Doctoral Degree in Pharmacology at USU, is now the Health Sciences Grants Manager for the Congressionally Directed Medical Research Programs at Fort Detrick in Frederick, Maryland.

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Class of 1998.

Lieutenant Colonel Mark Arness, USAF, USU Graduate Program Class of 1998, who received a Master of Tropical Medicine & Hygiene Degree from USU, is serving as an Air Force Preventive Medicine Officer at the Army Medical Surveillance Activity and Defense Medical Surveillance System, where he is responsible for post-deployment health surveillance and is involved in adverse event surveillance following vaccination.

CAPT Ken Schor, USN, USU Graduate Program Class of 1998, who received a Master of Public Health Degree from USU, is the Preventive Medicine Officer at the Bureau of Medicine and Surgery (BUMED) where he serves as the Principal Advisor to the Surgeon General for Deployment Health Surveillance and the Smallpox and Anthrax Immunization Programs.

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Class of 1999.

CAPT Ed Kilbane, USN, USU Graduate Program Class of 1999, who received a Master of Public Health Degree from USU, is a team leader of the forward deployed Naval Environmental Preventive Medicine Unit (NEPMU-7) in a classified operational location.

Steven Berkowitz, Ph.D., USU Graduate Program Class of 1999, who received a Doctoral Degree in the Clinical Psychology Program from USU, moved from the Veterans Administration Cooperative Studies Program to become the Director of the Division of Operations and Committee Support, Coverage and Analysis Group, Center for Medical and Medicaid Services located at the headquarters in Baltimore, Maryland. Doctor Berkowitz is involved in the scientific evaluation of the evidence base for Medicare's National Coverage Decisions.

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Class of 2000.

Lieutenant Commander Tanis Batsel, USN, USU Graduate Program Class of 2000, who received a Master of Public Health Degree from USU, is assigned as the Chief of the Preventive Medicine Branch for the United States Northern Command and the North American Aerospace Defense Command (NORAD) at Peterson Air Force Base, Colorado. Doctor Batsel also graduated from the USU SOM in 1993.

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Class of 2001.

Major Philip L. Gould, MPH, DTMH, USAF, MC, Preventive Medicine Consultant, Deployment Health Surveillance/Suicide Surveillance, Epidemiology Services Branch, Air Force Institute for Environmental Safety and Occupational Health Risk Assessment, Brooks City-Base, Texas, USU Graduate Program Class of 2001, who received a Master of Tropical Medicine and Hygiene Degree from USU, is assigned with deployment surveillance for all of the Central Command (CENTCOM) and assisting command units at the Air Force Institute for Environmental Safety and Occupational Health Risk Assessment (AFIERA). Personnel at AFIERA are at the forefront of surveillance for currently deployed troops, with responsibilities to provide routine briefs and reports for: the Secretary of Defense; the Assistant Secretary of Defense, Health Affairs; and, the Joint Chiefs of Staff.

Major Mylene Huynh, USAF, USU Graduate Class of 2001, who received a Master of Public Health Degree from USU, is assigned as the Deputy Chief of Preventive Medicine at the Office of the Surgeon General of the Air Force, where she serves as an advisor for Deployment Health Surveillance and the Smallpox and Anthrax Immunization Programs.

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Class of 2002.

Commander Byron Conner, USN, USU Graduate Program Class of 2002, who received a Master of Public Health Degree from USU, is a member of the forward deployed Naval Environmental Preventive Medicine Unit (NEPMU-2) in a classified operational location.

Lieutenant Commander Charles McCannon, MC, USN, USU Graduate Program Class of 2002, who received a Master of Public Health Degree from USU, passed the Certified MBA Examination and was awarded the CMBA Designation by the International Certification Institute. He was among the first group of MBAs to earn the distinction.

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Class of 2003.

Captain Colleen Daniels, USA, USU Graduate Program Class of 2003, who received a Master of Public Health Degree at USU, was awarded the Myra McDaniel Writers Award for her paper on an ergonomics-based approach to preventing musculoskeletal disorders in the Army. This competitive award is given to the entry judged best on the basis of its pertinence to occupational therapy practice, education, research or administration, originality, style and clarity of communication, and scholarship. The winner is selected by the Chief of the Occupational Therapist Section, Office of the Army Surgeon General. Daniels was the first graduate of the Occupational Ergonomics track in the MPH program and currently is at the United States Army Center for Health Promotion and Preventive Medicine.

Commander Gary Hook, USN, USU Graduate Program Class of 2003, who received a Doctoral Degree in Environmental Health Sciences, Department of Preventive Medicine and Biometrics Program, USU, currently serves as an Assistant Professor in the Division of Environmental and Occupational Health at USU. Among his duties, he is a mentor to graduate students in the Preventive Medicine Programs.

Lieutenant Commander Gregory Langham, USPHS, USU Graduate Program Class of 2003, who received a Master of Public Health Degree at USU, is the Senior Staff Veterinarian, Animal Resources Branch, Scientific Resources Program, National Center for Infectious Diseases of the Centers for Disease Control and Prevention in Atlanta, Georgia.

Niloufar Neely Kazerouni, USU Graduate Program Class of 2003, who received a Doctoral Degree in Public Health (Dr.PH) from USU, went to the Centers for Disease Control and Prevention (CDC), National Center for Environmental Health Air Pollution and Respiratory Health Branch, located in Atlanta, Georgia. She serves as an Epidemiologist assigned to several states and is the project officer for a study on *The Role of Respiratory Viral Infections in Exacerbations of Asthma*.

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Class of 2004.

Joshua Murtie, USU Graduate Program Class of 2004, who received a Doctor of Philosophy Degree in Molecular and Cell Biology at USU, received the 2004 Graduate Student Award at the USU Commencement Ceremonies. He is currently a Post-Doctoral Fellow in the Department of Neurology at Childrens Hospital in Boston, Massachusetts.

Lisa May, USU Graduate Program Class of 2004, who received a Doctoral Degree in Public Health from USU, serves as the Director of the Office of Emergency Preparedness and Response, Maryland Department of Health and Mental Hygiene. She is responsible for coordinating the *All Hazards* (snow, hurricanes, and biological/chemical/nuclear hazards) approach to emergency management and response in the Department of Health and Mental Hygiene (DHMH).

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V. GRADUATE MEDICAL EDUCATION

Army Graduate Medical Education (GME) Programs are the keystones to the quality of Army Medicine. Our GME Programs include military-unique aspects of a given specialty, which prepare physicians for the rigorous demands of practice in a wartime or contingency environment. Residents receive orientations and lectures concerning war zone injuries, trauma, and military deployments. Additionally, they attend formal training which includes a centralized combat casualty care course, advanced trauma life support, and medical management of chemical and biological casualties. After completing an Army Graduate Medical Education Program, a physician is uniquely qualified to deploy at all levels within the theater of operations to support the military medical mission. We now place board-certified physicians in our brigade and division surgeon positions to ensure that our divisional soldiers receive the highest levels of care regardless of where they are in the world.

- **Lieutenant General James B. Peake, the Surgeon General of the Army**, Testimony before the House Committee on Armed Services, Subcommittee on Defense, April 10, 2002.

ESTABLISHMENT

Background - Graduate Medical Education Programs in the Military Health System. Graduate medical education (GME) comprises the second phase of the formal educational process that prepares physicians for medical practice. GME is required of all medical school graduates seeking full medical licensure and board certification in one of the specialties and/or subspecialties of medicine. This phase of medical education is, of necessity, conducted primarily in clinical settings, and requires direct participation by residents in the delivery of patient care services. Conducting high quality GME has always been a demanding undertaking. Ensuring an optimal learning environment and creating a proper balance between education and patient care activities have been the principal challenges to medical educators. In recent years, those challenges have become increasingly formidable due to the impact that the tremendous changes in the health care delivery system have had on the patient care environments in which GME is conducted. Certain of these changes have presented particularly difficult challenges for GME. Of special note, the shortened length of hospital stays, the increased emphasis on ambulatory care, the reductions in support staff, and the increased acuity of the average in-patient have placed increased demands on residency programs across the United States. The military GME programs in the National Capital Area have addressed many of these concerns through the use of simulated patients and virtual clinical experiences as discussed later in this section.

Following their graduation from the USU School of Medicine (SOM), the USU physician-graduates become active duty officers in the Military Health System (MHS) and are assigned to serve as residents in the MHS Graduate Medical Education Programs. The length of time served as a resident depends upon the individual specialty area. Residents in the MHS enjoy unique educational advantages. For example, the uniformed faculty members at the military teaching hospitals are all full-time, ensuring a level of involvement in student and resident (GME) education that is unmatched at other settings. The military GME system is second in size only to that of the Department of Veterans Affairs; and, it is committed to

medical education at all levels over a broad range of disciplines. The National Capital Consortium (NCC) residents, as well as all other residents in the integrated GME programs throughout the Military Health System, significantly benefit from the dedicated uniformed faculty and staff who provide educational GME programs and training at the military medical centers. And, as mentioned above, the NCC resident also has the advantage of participating in state-of-the-art simulated education and training.

The military resident, in most programs, also serves as an educator or trainer of medical students and junior residents. This proves to be a unique growth opportunity; and, most often, the resident comes to understand that teaching is actually an advanced expression of learning. Preparation for student lectures and teaching rounds is a reiterative process, which consolidates the resident's own base of medical knowledge. The USU medical students and the more junior NCC residents are the indirect beneficiaries of the senior residents' training as they observe and participate in conferences, activities and clinics directed toward their education.

Simulated Operating Rooms for Specific Specialties Are Available on the USU Campus. Advanced training is provided by the USU Clinical Simulator and Patient Simulation Laboratory (PSL), which is fully equipped with all of the functional equipment of an operating room, to include standard monitoring equipment, a life support system (anesthesia machine and ventilator), a defibrillator, and instruments used in treatment. The PSL also includes complete audio/video recording and playback equipment. Training sessions are recorded; and, immediately following, the residents review their performance with their instructors. The simulated patient provides a unique opportunity to experience relatively rare cases, military relevant, and combat trauma scenarios. The residents gain experience in recognizing problems, developing decision-making skills, familiarizing themselves with instruments and equipment, and refining techniques and procedures. Residents are able to repeat the scenarios until they are performed correctly. ***Residents from the NCC GME Anesthesiology Program, receive approximately 100 hours of intensive, hands-on annual training***. The PSL also trains uniformed participants in the NCC GME Pediatrics Resident Program. Scenarios are designed to present specific patients who provide complex clinical problems; thus, critical experience is acquired without putting human patients, or the residents, at risk.

The National Capital Area Medical Simulation Center Offers State-of-the-Art Simulated Training. Following collaborative efforts that began in 1995, USU and the Surgeons General of the Army, Navy and Air Force instituted a new teaching facility, the National Capital Area Medical Simulation Center (SIMCEN), in support of numerous and distinct medical education programs. The SIMCEN, a satellite facility located in Silver Spring, Maryland, began initial operations in the Fall of 1999, and remains one of the few places in the United States that combines multi-simulation techniques under one roof. This nationally-recognized, state-of-the-art teaching facility allows health professionals to augment their skills through patient simulations, virtual reality applications, and training with mannequin simulators. It uses technology and actors posing as patients to teach the NCC GME residents about situations that they may encounter as practitioners but might not otherwise experience while training in hospital wards. The SIMCEN also provides the instruction of readiness skills and focused pre-deployment training for wartime, peacekeeping, and humanitarian missions. ***During 2004, the SIMCEN supported over 21 GME educational activities for approximately 600 uniformed officers*** (the SIMCEN is described at length in Section I of this report).

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The USU School of Medicine Office of Graduate Medical Education (GME). The USU SOM Office of Graduate Medical Education was established in 1986 to provide consultation on GME programs (internship, residency, and fellowship training for physicians) for Program Directors and the Office of the Assistant Secretary of Defense for Health Affairs (OASD/HA). From 1986 to present, USU GME, under the leadership of the Associate Dean for Graduate Medical Education, has provided DoD-wide consultation and oversight for numerous GME programs.

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MISSION

USU Office of GME Serves as a Significant Academic Component for Graduate Medical Education in the Military Health System. The University is directed to educate and train competent medical personnel qualified to serve the needs of the MHS through the provision of quality education programs in the health sciences. The Graduate Medical Education Programs of the MHS are of critical importance to both the University and to the entire network of Military Treatment Facilities. In light of this, the USU SOM Office of Graduate Medical Education serves as a significant academic component in the development of the medical expertise of the MHS residents in their assignments throughout the military GME programs. The following responsibilities are currently assigned to the USU GME program: 1) oversight for the National Capital Consortium; the USU SOM Associate Dean for Graduate Medical Education serves as the NCC Administrative Director; 2) collection and evaluation of data on the DoD GME programs to ensure academic and scientific excellence; 3) oversight for the integration of the DoD GME programs to ensure that accreditation is not jeopardized; and, 4) provision of consultation and advice for the Dean, School of Medicine, the President, USU, and others on military-unique medical curricula.

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POLICY FOR MILITARY UNIQUE TRAINING IN DOD-SPONSORED GRADUATE MEDICAL EDUCATION PROGRAMS

The USUHS shall coordinate efforts of the Services in developing the necessary curricula (for military unique training in DoD-sponsored Graduate Medical Education Programs) and shall establish a centralized repository of information on educational materials and courses to support the implementation of the curricula.

- Policy Memorandum, Office of the Assistant Secretary of Defense, Health Affairs, dated June 28, 1999, page one.

Graduate Medical Education Policy Is Issued by the Assistant Secretary of Defense for Health Affairs on June 28, 1999. In a memorandum dated June 28, 1999, the Assistant Secretary of Defense for Health Affairs (ASD/HA) stated that the Graduate Medical Education (GME) Programs conducted for military trainees in DoD facilities offer an opportunity to include military unique aspects to prepare physicians for the rigorous demands of practice in a wartime or contingency environment. The memorandum pointed out that it is essential for the military medical services to avail themselves of the opportunity in a comprehensive, yet efficient, manner; and, that new policies relative to DoD-sponsored GME programs are being established.

Each Program Must Include a Military Unique Curriculum that Is Standardized and Specialty Specific.

USUHS was the catalyst from which my entire career has evolved. Today, more than ever, this catalyst is necessary if we are to train and retain military physicians who place enormous value on the unique art and science of a military medical profession. We must have a cadre of military medical officers who practice the art and science of military medicine with an understanding of the past, where we have come from, applying new capabilities and skills within the context of military operations and be able to envision and work toward a more capable, flexible and agile military medical system in the future.

- **Brigadier General C. William Fox, Jr., MC, USA, USU SOM Class of 1981, Commanding General, Brooke Army Medical Center, Great Plains Regional Medical Command,** Fort Sam Houston, Texas, Correspondence with USU, April 13, 2005.

The GME Policy Memorandum of June 28, 1999, specified that at the entry level, each GME program must incorporate a standardized curriculum, which includes a core of those topics essential to every physician who will practice medicine in the military. This curriculum should be augmented by an orientation to field medicine such as the Combat Casualty Care Course (C4) or equivalent experience. The curriculum should be designed to complement, not replace, military training obtained through other means and only those elements that are both necessary and appropriate to the GME education program should be included. Beyond the entry year, each program should also include a military unique curriculum that is

standardized and specialty specific. For subspecialty training, the curriculum may be directed toward the projected utilization of the trainee, usually in his/her core specialty. An appropriate exposure to the practice of the specialty in an austere or contingent environment should be an essential element of each program.

USU School of Medicine Office of Graduate Medical Education Coordinates the Development of Curricula.

> **I became a surgeon and then specialist in Urology but always viewed my surgical expertise from the perspective of how I would apply my board certified skills within the context of the battlefield application of echeloned health care. My determination and experience, which began as a medical student, were the fundamental building blocks necessary to establish this as a vital aspect of my profession as a military surgeon and not a surgeon in the military. Through the crucible of war and peace, I have consistently applied my experience as an Army officer, surgeon, leader, and commander to optimize the delivery of health care on the battlefield.**
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> - **Brigadier General C. William Fox, Jr., MC, USA, USU SOM Class of 1981, Commanding General, Brooke Army Medical Center, Great Plains Regional Medical Command,** Fort Sam Houston, Texas, Correspondence with USU, April 13, 2005.

The USU School of Medicine Office of Graduate Medical Education was tasked by the Assistant Secretary of Defense for Health Affairs to coordinate the efforts of the Services in developing the necessary curricula and to establish a centralized repository of information on educational materials and courses to support the implementation of a military unique curriculum, which is both standardized and specialty specific.

The policy memorandum also directs that military unique training in GME programs must be documented on an annual basis and reported to the ASD(HA) by the Services by September 30 of the completed training year. Each program review must confirm that a military unique curriculum is in place and that it is being utilized; it should also confirm that appropriate opportunities to experience specialty practice in constrained environments exist and are being utilized.

Following the receipt of the June 28, 1999 GME Policy Memorandum, the military unique curriculum for each major specialty was developed and posted on the Graduate Medical Education Web Site <*http://cim.usuhs.mil/dodgme/*>. Subject matter expert panels have been reconstituted to accomplish biennial revisions; however, continued funding is critical to ensure the future of the project.

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NATIONAL CAPITAL CONSORTIUM

Development of the National Capital Consortium. In 1993, the Assistant Secretary of Defense for Health Affairs directed that duplicative GME programs in the National Capital Area and San Antonio must be integrated or closed. This led to the establishment, in January of 1995, of the National Capital Military Medicine Education Consortium consisting of the Walter Reed Army Medical Center (and its subordinate command, the Dewitt Army Hospital located at Fort Belvoir, Virginia), the National Naval Medical Center, the Malcolm Grow Medical Center, and the USU School of Medicine. At that time, there were 86 programs located at five sites.

Ten GME programs were integrated into five during the first year of the Consortium's existence. In 1997, the Consortium was site surveyed by the Accreditation Council for Graduate Medical Education (ACGME) and given a *favorable decision* by the ACGME as an institutional sponsor. Later that year, the administrative headquarters was relocated to USU and **Howard E. Fauver, Jr., M.D., Associate Dean for Graduate Medical Education, became the Administrative Director**. The name was changed to the National Capital Consortium (NCC) in 1997, as well. Growth of the NCC continued sporadically over the next few years; and, it was not until 2002, that the last of the GME programs in the National Capital Area came under the sponsorship of the NCC, bringing the current total to 65 programs. The NCC was again approved by the ACGME as an institutional sponsor, in 2001, for the maximum five-year period.

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Mission of the National Capital Consortium. The National Capital Consortium (NCC) serves as the institutional sponsor for the GME integrated programs offered by the three major Medical Treatment Facilities (MTFs) in the National Capital Region: the Walter Reed Army Medical Center; the National Naval Medical Center; and, the Malcolm Grow Medical Center. The three MTFs comprise the NCC membership; and, the USUHS SOM serves as the fourth, and final, member of the NCC. The USU Office of GME also serves as the Administrative Office for the NCC.

The mission of the NCC is to educate physicians, dentists, and other health care professionals who provide care for the soldiers, sailors, airmen, and marines of all ages, throughout the Military Health System, to include their families. The NCC provides a scholarly environment and is dedicated to: excellence in both education and health care; and, the provision of ethical values and standards to all trainees, such as would be expected of those who devote their lives to careers in public service. Information about the NCC programs, governance, Bylaws, and NCC Administrative Handbook can be accessed via the NCC web site: <*http://www.usuhs/mil/gme*>.

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Accreditation. The Accreditation Council for Graduate Medical Education (ACGME) is responsible for the accreditation of post-medical doctorate (M.D.) physician training programs within the United States. Accreditation is accomplished through a peer review process and is based upon established standards and guidelines. ***The mission of the ACGME is to improve the quality of health care in the United States by ensuring and improving the quality of graduate medical education experiences for physicians in training.*** The ACGME established national standards for graduate medical education by which it approves and continually assesses education programs under its aegis. It uses the most effective methods available to

evaluate the quality of graduate medical education programs; and, it strives to improve evaluation methods and processes so that they are valid, fair, open, and ethical. In carrying out these activities, the ACGME is responsive to change and innovation in education and current practice; it promotes the use of effective measurement tools to assess resident physician competency; and, it encourages educational improvement.

The National Capital Consortium (NCC), by supplying leadership and resources, complies with the ACGME Institutional Requirements and ensures that Consortium-sponsored programs comply with ACGME program requirements. Consortium-sponsored programs comply with ACGME program requirements; and, an increasing number of full five-year accreditations are being attained. Consortium-sponsored GME programs operate under the authority and control of the Consortium (NCC). The Consortium regularly assesses the quality of the NCC educational programs. Despite the impact of the war in Iraq, the education mission continues to be met through the dedication and hard work of those who have not been deployed and remain in the NCC programs.

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A Selected Example of GME and GME Staff Contributions to DoD Mission Requirements.

The Army's Regional Anesthesia Pain Management Initiative. The Army's Regional Anesthesia Pain Management Initiative was established, in 2000, by **Colonel Jack Chiles, MC, USA, Associate Professor, USU SOM Department of Anesthesia,** and **Lieutenant Colonel Chester C. Buckenmaier III, USU SOM Class of 1992, Chief, Regional Anesthesia Section, Walter Reed Army Medical Center**. Both Doctors Chiles and Buckenmaier have performed the procedure, technically known as a continuous peripheral nerve block, at the 31st Combat Support Hospitals in Baghdad and Balad. They were looking for ways to improve battlefield pain control and identifying an anesthetic that would reduce the logistics footprint. Regional anesthesia has many qualities that make it an ideal battlefield anesthetic. It does not require a lot of equipment; and, it allows patients to maintain their sensorium. Regional anesthesia, even with a single injection, lasts a long time; wherever a needle is placed, the surgeon can use a paraneural catheter that will allow continuous access so that infusions of local anesthetic can be run for days to control pain. Recent Congressional funding has allowed research and the academics required to bring this initiative forward for peer review.

Doctors at the Walter Reed Army Medical Center have been using regional anesthesia since 2000; however, ***October 7, 2003 was the first time that it was used on the battlefield.*** LTC Buckenmaier performed the procedure while on a forward surgical team with the 31st Combat Support Hospital, in Balad. The first definitive surgery wounded soldiers receive is at a combat support hospital; and, that is where anesthesiologists work and where regional anesthesia techniques are used. The Army Surgeon General was concerned about wounded soldiers being flown from the battlefield in excruciating pain; thus, he directed that regional anesthesia be used. Using regional anesthesia, physicians do not have to bring the patient to the operating room to complete a dressing change; with the regional anesthesia block inserted, the doctor can dose the catheter and complete a dressing change right at the bedside.

Doctors at George Washington University Medical Center, in Washington, D.C., had been performing regional anesthesia and providing regional anesthesia for a long time, but they had not used continuous peripheral nerve blocks. The attending anesthesiologist at George Washington's Regional Anesthesia Center, Doctor Olya Quitkin, recognized that the Walter Reed Medical Center already had an established service that worked well; she decided to visit at Walter Reed and determine how they could

establish a similar initiative at George Washington. Doctor Quitkin attended a workshop conducted by LTC Buckenmaier in 2003; she has already put to use a lot of what she learned during that workshop. Doctor Quitkin recognized that using continuous peripheral anesthesia blocks would save time and money and greatly reduce pain.

LTC Buckenmaier would like to see the Army's Regional Anesthesia Pain Management Initiative expanded to include the other Services. ***He started a Fellowship Program in July of 2004***, which is directed by **Major Scott Croll, USU SOM Class of 1995**. The first Fellow to participate in the program is **Lieutenant Colonel Cynthia Shields, USU SOM Class of 1989**. The Air Force has indicated a strong interest in the program.

(This section was based on an article in USU Medicine, *Bringing Wounded Troops Home*, Summer 2004 Edition, pages 6-15.)

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NCC/GME Awards and Distinctions (2003-2004).

As in previous years, the Residents, Fellows and Faculty in the NCC GME Education Programs garnered numerous distinctions and awards. The following are selected examples:

- **Lieutenant Colonel Michael Nelson, MC, USA, Diagnostic Immunology Program Director,** and **Colonel Philip Corcoran, MC, USA, Cardiothoracic Surgery Program Director,** received the prestigious ***LTG Claire L. Chennault Award*** as outstanding teachers; **COL Corcoran** also received the ***Army Surgeon's General A Designator***;

- **Seven Residents of the NCC Dermatology Program had their presentations accepted** at the ***American Academy of Dermatology Annual Meeting***;

- **Captain Joshua Sparling, MC, USA, Resident, Dermatology Program,** was selected to serve as the ***Resident Representative on the Dermatology Residency Review Committee***;

- **Major Anthony Beutler, Malcolm Grow Family Medicine Program, current NCC WRAMC Transitional Year Program Director,** received a **4 million dollar NIH grant** to study ***Epidemiology of Jump-Landing Movements and ACL Injury***;

- **The NCC WRAMC Internal Medicine Program Faculty**, had ***eight peer-reviewed publications and three abstracts selected for poster presentations***, out of several thousand submissions nation-wide, at the ***National American College of Physicians Annual Meeting***;

- There were ***13 abstracts presented by NCC Residents*** at the ***National American College of Physicians Annual Meeting***; among them were ***four prize winners***;

- **CAPT Muhamed Shakir, MC, USN, Endocrinology Program Director,** was awarded *the title of* ***Master of the American College of Physicians, the highest award given by that organization***;

- **Doctor Michael Zapor, Internal Medicine Fellow,** received a travel award for his presentation at a meeting of the ***Infectious Disease Society of America***;

- **Captain Bucci, MC, USA, a Nephrology Fellow,** was an ***NKF Fellows' Forum Award winner***;

- **Lieutenant Colonel Mark DiFazio, MC, USA, a Child Neurology Staff Member,** has emerged as a ***national expert in the use of botulinum toxin in the treatment of motor disorders*** and spoke at numerous meetings during the past year;

- **Lieutenant Colonel Rocco Armanda, MC, USA, Neurosurgery Faculty Member, *received a Bronze Star for his service in Iraq***;

- **Colonel Andrew Satin, USAF, MC, Former Residency Program Director, Current Department Chair of Obstetrics and Gynecology at USUHS, *was appointed to the Residency Review Committee in Obstetrics and Gynecology***;

- **Major Jason Parker, Reproductive Endocrinology and Fertility Fellow,** received the ***Founders' Award of the Armed Forces District for Best Paper***; the Fellows also had 15 abstracts accepted, an 83 percent acceptance rate;

- **Lieutenant Colonel Eiseman, MC, USA, Ophthalmology Program Director, *is an Examiner for the Board of Ophthalmology***;

- **NCC WRAMC Orthopaedic Residents won six outstanding or first place awards, in addition to, *the Resident Leadership Award***;

- **Colonel Martin Ottolini, USAF, MC, Pediatric Infectious Disease Program Director, was *named to the Society of Pediatric Research***;

- **The Residents and Staff in Physical Medicine and Rehabilitation *received an Outstanding Achievement Award from the Academy of Physical Medicine and Rehabilitation in recognition for their work caring for the wounded in Operations Enduring Freedom and Iraqi Freedom***; and,

- **Colonel Cathy Nace, MC, USA, Transitional Year Program Director at Walter Reed, Chair of the Council of Transitional Year Program Directors,** was recently ***selected to serve on the Accreditation Council for Graduate Medical Education (ACGME) Transitional Residency Review Committee***.

Scholarly Activity.

The ***NCC Faculty, Residents, and Fellows*** continue to produce large numbers of articles, book chapters, poster presentations and abstracts, including major articles in such prestigious publications as the New England Journal of Medicine.

Board Certification.

Board certification rates continue to be high, approaching 100 percent in a majority of the NCC Program Specialties.

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VI. THE OFFICE OF CONTINUING EDUCATION FOR HEALTH PROFESSIONALS

Continuing Health Professional Education responds to the needs for professional development for military health care professionals around the world. All uniformed practitioners are required to receive continuing education, and have a choice from civilian, military, and USU sources. USU offers a unique blend of the military application as well as collaborative expertise that is able to pull from all of the armed services branches - Army, Navy, Air Force - through the leadership of the USU. Those military members seeking professional development through a single armed service would typically be limited to information for their branch. The USU is uniquely accredited (i.e., **Accreditation Council on Continuing Medical Education, American Psychological Association, and American Nurses Credentialing Center's Commission on Accreditation) to address all aspects of health care education across all branches of the military... The Team suggests the USU investigate ways to further promote this unique opportunity to provide continuing education to all branches of the military.**

- **Educational Program and Curricula**, Continuing Health Professional Education, Report to the Faculty, Administration, Trustee, Students of USU, Middle States Commission on Higher Education, prepared for the 2003 site visit, page 11.

MISSION

USU is Mandated by Congress to Provide Continuing Education for Health Professionals. Under Title 10, U.S. Code (Section 2113), USU is mandated by Congress to "establish programs in continuing medical education for military members of the health professions to the end that high standards of health care may be maintained within the military medical services." The mission of the USU Office of Continuing Education for Health Professionals (CHE) is to sponsor, directly or jointly, activities in continuing education for members of the Federal health care delivery system ensuring achievement of the Congressional mandate. This standard of excellence is achieved through a vigorous and creative evaluation process.

The Office of **CHE plays a central role in facilitating the continued professional growth of health care professionals in the Federal Services by providing live courses and conferences, enduring materials, and web-based continuing education (CE)**. In addition, the Office of CHE establishes activities for non-Federal civilian health professionals in disciplines where the body of knowledge is available primarily within the Federal Services medical domain and when that knowledge will contribute to the health of the Nation, other countries, or the global community.

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Six Factors Mandate CHE's Essential Role in Today's Military Health System. Continuing Education has always been recognized as an essential component of the continuum of education for health professionals. Current educational, social, and political factors that highlight the critical role of CE in the educational spectrum follow:

***Enhanced awareness of proactive health care provider response to worldwide threats*;**

***Incorporation of evidence-based medicine, clinical practice guidelines, and accountability into daily medical practice*;**

***Heightened patient safety accountability*;**

***Recognized CE value for provider skill level competency for medical readiness and deployment scenarios*;**

***Increased demand to deliver cutting-edge CE and rapid advances in biomedical knowledge, clinical practice guidelines, and health care technology*;** and,

Focused partnerships between military medicine, other Federal, and private sector medicine.

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CHE Must Ensure Academic Involvement in all Phases of Educational Activities Designated for Credit. The Office of Continuing Education for Health Professionals is under the leadership of the Senior Executive Director, who reports directly to the USU President, and is responsible for administrative/ academic involvement in all phases of the educational activities designated for credit, to include:

- Needs assessment, planning, implementation, and evaluation of continuing education activities for members of the health professions serving in the Uniformed and other Federal Services. Continuing education activity topics are based on formal surveys, structured interviews, current professional topics, and higher authority directives. In every case, the particular interest, needs, and learning styles of the specific audience are considered during planning, preparation, delivery, and evaluation;

- Acquisition and maintenance of continuing education accreditation at USU; attendance at professional conferences and meetings conducted by the accrediting agencies or peer groups to ensure University compliance with all continuing education requirements of the Accreditation Council for Continuing Medical Education, the American Nurses Credentialing Center's Commission on Accreditation, the American Psychological Association, the American College of Healthcare Executives, and the State of Maryland Department of Health and Mental Hygiene Board of Social Work Examiners;

- Administrative and logistical support and determination of budgetary requirements for continuing education activities sponsored by the University;

- Maintenance of professional and educational liaisons with military and civilian professional organizations and academic institutions; and,

- Monitoring the quality of continuing education activities and using evaluative and outcome data to improve the quality of future activities at the University. Annual total program evaluations identify areas where improvement could enhance the continuing education services provided by the University. Mechanisms, such as the evaluation of events by participants, by faculty, and by office staff, help to improve the quality of similar forthcoming events. A consistent focus on developing employee potential through cross training within the office and additional training within the University and from outside sources also improves the provision of services. Continuous quality improvement is active in all areas of the CHE Office.

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NATIONALLY RECOGNIZED CONTINUING EDUCATION CREDIT

Unique Accreditation Within the Military Health System. The USU Office of Continuing Education for Health Professionals provides nationally recognized continuing education credit for physicians, nurses, psychologists, health care executives, and social workers through its accreditation by: 1) the Accreditation Council for Continuing Medical Education (accredited through July of 2011); 2) the American Nurses Credentialing Center's Commission on Accreditation as a Provider of Continuing Education in Nursing (accredited through August of 2007); 3) the American Psychological Association (accredited through February of 2008); 4) the American College of Healthcare Executives (ACHE) authorized USU to award pre-approved Category II (non-ACHE) continuing education credit through June 30, 2008; and, 5) the State of Maryland Department of Health and Mental Hygiene Board of Social Work Examiners (indefinitely). **This inclusive provision of continuing education for multiple disciplines, from one office, is believed to be unique within the Military Health System (MHS).**

The Office of CHE, under the academic umbrella of the University, is exceptionally positioned to perform a significant role in facilitating the continued professional growth of health care professionals in the MHS. The principal responsibilities of the office are the identification of educational needs, planning, implementation, and the evaluation of continuing education activities and outcomes.

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The Continuing Health Education Committee. The Continuing Health Education Committee (CHEC) serves as an approving body and as an advisory committee to the USU President and to the Office of CHE. The USU President appoints the CHE Committee members. Other faculty members are invited to participate in the committee activities on an *ad hoc* basis. The committee membership, across all disciplines and departments, facilitates communication and provides a forum for planning education activities and for the discussion of issues and policies that affect continuing medical education.

The CHEC has incorporated an internal evaluation system for all sponsorship requests through which individual requests are scored against a matrix representing the Accreditation Council for Continuing Medical Education Essential Areas and Elements. The CHEC has formed task forces to address critical accreditation issues, such as evidence-based CME, content validation, standards for commercial support, and outcomes evaluation. In all cases, committee members bring a wealth of experience and perspective to the CHEC as an oversight body.

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INCREASED SUPPORT FOR THE MILITARY HEALTH SYSTEM

CHE Support for Graduate Medical Education Programs. In conjunction with the National Capital Consortium (the institutional entity for the National Capital Region's GME-integrated programs offered by the Walter Reed Army Medical Center, the National Naval Medical Center, and the Malcolm Grow Medical Center), the Office of CHE's involvement has greatly increased through the sponsoring of on-going continuing medical education (CME) activities such as Regularly Scheduled Conferences (i.e., Grand Rounds) in Anesthesia, Deployment Health, Faculty Development, GYN Oncology Tumor Planning, Ophthalmology, Pediatrics, and Psychiatry.

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CHE Support for TRICARE/Health Affairs Initiatives. During Fiscal Year 2004, the USU Office of CHE supported the Office of the Secretary of Defense (OSD), Health Affairs (HA) with the following activities: Med Teams Training; the DoD Spokesperson Training Program - Anthrax/Smallpox; the DoD Suicide Prevention Conference; the TRICARE Conference; the TRICARE Composite Health Care System II Courses; the Health Information and Management Systems Society Conference; the Interagency Institute for Federal Health Care Executives; the Medical Executive Skills Courses; and, the Medical Effects of Ionizing Radiation (MEIR) Courses.

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Specialty Courses for the Military Health System. The Office of CHE sponsored continuing education for numerous specialty courses for the Military Health System during 2004. The following examples convey the scope of service to the Uniformed Services.

Medical Readiness - The Military Medical Humanitarian Assistance Course. The Military Medical Humanitarian Assistance Course is a two-day interactive course designed to train United States military health care providers to deliver optimal medical care to civilian populations, primarily women and children, in the aftermath of humanitarian emergencies. Prior to this course, a void existed in preparing medical officers with the necessary skills, knowledge, and confidence to actively participate in such missions. Given the United States military's involvement in Military Operations Other Than War (MOOTW), this course familiarizes clinicians with the unique aspects of humanitarian missions, so that they are best prepared to actively participate in and lead future missions. Though the health issues are often predictable, the paradigm presents issues that rapidly progress to the severest degree. Resources are typically more limited than in other operations, complicating any attempt for immediate intervention. The course emphasizes practical skills and techniques, not often addressed in the curriculum of American medical education, which will be useful to the provider who is challenged to provide the best possible medical care in an austere environment. The faculty, who present this course, are committed to the quality and credibility of this educational experience. All clinical instructors have had personal experience practicing medicine in an austere health environment; and, all of the clinical cases are derived from real experiences in operational medicine. This course was developed at USU under the sponsorship of the Dean, School of Medicine, and the Department of Pediatrics. During 2004, the course was held nine times for 155 physicians and 49 others.

Distance Activities. During Fiscal Year 2004, the increase in Internet activities continued. The following activities were available:

DoD Smallpox Vaccination: Standard Training - The threat of smallpox provided the momentum for a partnership between the DoD Military Vaccine Agency (MILVAX) and USU. *DoD Smallpox Vaccination: Standard Training* consists of sessions grouped specifically for three levels of professional smallpox vaccination program responsibility. Since the beginning of this activity, 3,286 participants have successfully completed these sessions. Of these, 523 physicians, 325 nurses, and 27 ACHE members were able to earn the following credit: up to 53.5 continuing medical education (CME); 63.7 continuing nursing education (CNE); and, 10.5 Category II (non-ACHE) credit. This program is available to the general public at <*http://dod.digiscript.com*> at no cost;

Military Vaccine Agency (MILVAX) Spokesperson Training Course - *The Military Vaccine Agency (MILVAX) Spokesperson Training Course* started during Fiscal Year 2004. It is a condensed version of a three-day conference, which provides a variety of information related tasks regarding the Anthrax Vaccine Immunization Program (AVIP) and the Smallpox Vaccination Program (SVP) through either an administrative or clinical focus. This activity is available to the general public at <*http://dod.digiscript.com*> at no cost;

MedPix - An On-Line Medical Image Database - *MedPix, an on-line Medical Image Database,* has been developed by the USU School of Medicine Departments of Radiology and Radiological Sciences and Biomedical Informatics. MedPix provides a summary of case studies with images and links for further study. This site targets practicing physicians and nurses, residents, medical students, and graduate nursing students and enables them to enhance their radiological diagnostic skills. Participants who successfully complete four cases are awarded one category 1 CME credit for physicians and 1.2 contact hours of CNE credit for nurses; CHE has awarded over 4,000 CME and CNE credits since April of 2003. This program is available through registration at <*http://rad.usuhs.mil/medpix*> at no cost;

On-Line Education Series Focused on Quality of Care - The National Quality Management Program (NQMP) collects data on key health care quality indicators from Military Treatment Facilities, analyzes it, and compares findings to national benchmarks. A partnership was formed with the Affiliated Computer Services (ACS) Federal Healthcare, TRICARE Management Activity, and USU to produce an educational program to positively influence the quality of care provided to military health care beneficiaries. In Fiscal Year 2004, this on-line education series had 11 activities related to the Military Health System: *Childhood Immunization; Chlamydia Screening; Breast Cancer Screening; Cervical Cancer Screening; Asthma Care; Tobacco Use Cessation; Management of Dyslipidemia; Diabetes Care; Post Deployment Health; Depressive Disorder Care, and Post Deployment Care Evaluation and Management in 2003*. This educational series is available at <*http://www.nqmp.info*> at no cost;

Learning Center Series of the Military Health System Optimization & Population Health Support Center - On-line since January of 2004, the *Learning Center Series of the Military Health System Optimization & Population Health Support Center (MHSOPHSC)* focuses on the theory and benefits of individual health optimization through population health improvement. This series has eight activities, including: *Case Management 1 and 2; Value of Accurate Preventive Medicine Coding; Utilization Management 101;*

Milliman Ambulatory Care Guidelines - 8th Edition; Overweight and Obesity Professional Education; 12-Step Utilization Management Process; and, InterQual Products Overview. USU provides these continuing education activities for physicians, nurses, and social workers at <*http://www.mhsophsc.org/public/home.cfm*> at no cost;

Medical Responses to Weapons of Mass Destruction - The *Medical Responses to Weapons of Mass Destruction*, an interactive, on-line course, was designed to provide information and decision skills critical to the successful management of patients exposed to biological warfare agents. World-recognized experts from USU developed the course content. Teaching methods include audio and print lectures, case studies, and tests to measure content mastery. During the past year, USU provided 9 physicians up to 18 Category 1 credits. The course is available to institutional purchasers at <*www.wmdcourse.com*>; and,

Periodical: Current Advancements in Deployment Medicine - The Journal of Special Operations Medicine is a quarterly peer-reviewed journal geared to Special Operations Forces medical professionals. Its mission is to promote the professional development of Special Operations medical personnel by providing a forum for the latest relevant advancements in deployment medicine. USU provides continuing education to health providers who read the article(s) and successfully complete the post-test(s). The Journal of Special Operations Medicine is available at <*http://www.hurlburt.af.mil/jsou*>.

Other Courses/Activities Sponsored by CHE During 2004:

The International Spine Workshops - The International Spine Workshops (Cervical, Peripheral Nerve, Thoraco-Lumbar) provide surgeons state-of-the-art, hands-on cadaver, spinal instrumentation surgical experiences that cover the gamut of modern spinal surgery;

The Annual Capital Conference Family Practice Board Review - The Capital Conference Family Practice Board Review is sponsored for family physicians in preparation for the American Board of Family Practice Certification Examination;

Surgical Topics - Surgical Topics include Advanced Gynecological Laparoscopy and Hysteroscopy, Gynecologic Surgical Pelvic Anatomy and Dissection, the Military Vascular Surgery Symposium, and the Annual Pediatric/Pediatric Surgery Symposium; and,

TriService Video Endoscopy - Two Courses on TriService Video Endoscopy provide a forum for Perioperative Nurses to update their knowledge and skills in endoscopic procedures, instrumentation and problem solving strategies related to video endoscopy technology.

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Association of Military Surgeons of the United States (AMSUS) Annual Meeting. Since the 99th Annual Meeting in 1992, CHE has worked with AMSUS to provide continuing education credit for their Annual Meetings. AMSUS was established in 1891, and incorporated by an Act of Congress in 1903, as the Society of the Federal Health Agencies. As such, it contributes to the improvement of all phases of the Federal Health Services. The constituent services of AMSUS include the medical departments of the United States Army, Navy, Air Force, and Public Health Service, and the Department of Veterans Affairs. For Fiscal Year 2004, the United States Public Health Service Commissioned Corps hosted the AMSUS 109th Annual Meeting, *Partnerships in Preparedness, Prevention and Public Health: Protecting the Nation*, held on November 16 - 21, 2003, in San Antonio, Texas,with 5,124 attendees. During the AMSUS Fiscal Year 2004 Annual Meeting, the USU Office of CHE offered 144 sessions for continuing education credit in five disciplines (a 300 percent increase from the 47 sessions offered in two disciplines during the AMSUS Fiscal Year 1993 Annual Meeting).

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GENERATED COST AVOIDANCE FOR DOD BY CHE

CHE Generates Cost Avoidance for DoD - $4,988,321. In carrying out its principal responsibilities during Fiscal Year 2004, CHE sponsored continuing medical education for 1,045 activities with an attendance of 7,996 physicians; provided continuing nursing education for 102 activities with an attendance of 3,231 nurses; approved Category II (non-ACHE) continuing education credit for 57 programs for 873 members of the American College of Healthcare Executives; and, provided seven continuing education activities for 83 psychologists and 33 activities for 126 social workers. Because the USU Office of CHE brings medical training to the medical health care professionals, an estimated cost avoidance of $4,988,321 was generated for the DoD by eliminating extensive travel expenses and time away from the hospitals and clinics (the total cost avoidance was calculated by subtracting all of the operating costs for the USU Office of CHE, to include civilian and military manpower, from the total of savings generated by the elimination of travel, per diem and significant commercial registration expenses ($5,886,610 - $898,289 = $4,988,321).

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SUPPORT FOR OTHER FEDERAL ORGANIZATIONS

National Aeronautics and Space Administration (NASA) Teleconference Continuing Education Series. Another example of service to other Federal agencies was the sponsorship with NASA of two continuing education series on *Travelers' Health and Safety* and *Psychological and Behavioral Impact*. Video-teleconferencing systems connected live seminars to: the Institute for Biomedical Problems located in Moscow; the Institute of Telemedicine in Toulouse, France; the Medical Informatics Center at the Medical College of Virginia; the Robert Byrd Health Sciences Center at West Virginia University; the USU campus; and, the 14 NASA Centers. These seminars are part of the continuing initiative of the NASA Office of Life and Microgravity Sciences and Applications to provide continuing education for the NASA employees and contractors and to promote international understanding and interactions among the international Space Station Project Partners. USU has provided CME, CNE, and ACHE continuing education support for the NASA seminar series since 1998.

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MILITARY TRAINING NETWORK

Mission. The mission of the Military Training Network (MTN) is to develop and implement policy guidance and ensure compliance with curricular and administrative standards for resuscitative and trauma medicine training programs for the Uniformed Services and Department of Defense (DoD) affiliates. The MTN supports medical readiness through continuing health professional resuscitative and trauma education for service members world-wide. The TriService MTN staff provides service-specific expertise, central record keeping, and worldwide coordination of training programs.

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Background. The MTN was established, in 1982, by the DoD Health Council for the purpose of training, registration, coordination, and centralized record keeping for resuscitative medicine programs. The MTN falls under the purview of USU, and is organized under the Senior Executive Director, USU Office of Continuing Education for Health Professionals.

The MTN has been recognized as an American Heart Association (AHA) Regional Training Center since 1984 and as the American College of Surgeons (ACS) Region 13 Program Coordinator since 1996. Over the past six years, more than one million service members have attended MTN training programs.

United States Army, Navy, and Air Force personnel equally staff the MTN, which is resourced by USU. The operation of the MTN would not be possible without the additional support provided by the Service Surgeons General.

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Strategic Goals. The MTN has identified five goals for its strategic focus:

Deliver quality, nationally recognized training programs to ensure optimal Medical Readiness for the Department of Defense;

Quantify compliance of MTN affiliated Training Sites to American Heart Association Guidelines through site visits and record audits. Validate Self-Review findings with targeted Site Review visits to 10 percent of MTN's training locations, including OCONUS, over the next two years;

Provide top-notch customer service by enhancing MTN administrative processes to include upgrading automation systems and on-line customer resources;

Preserve fair cost structures from vendors and international/national organizations that support MTN Training Sites; and,

Enhance excellence through the professional development of appointed training site staff including Program Directors, Administrators, and Training Site Faculty.

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Worldwide Capabilities Essential to Medical Readiness. The American Heart Association and the American College of Surgeons (ACS) recognize the USU MTN as a Regional Training Center/ Region Program Coordinator through written agreements. The resuscitative and trauma medicine training programs administered by the MTN include: Advanced Cardiac Life Support (ACLS); Advanced Trauma Life Support (ATLS); Pediatric Advanced Life Support (PALS); and, Basic Life Support (BLS). **During the past year, MTN held 887 continuing medical education credited courses; these courses, along with BLS, trained 232,884 DoD personnel.**

As an AHA Training Center and ACS Program Coordinator, the USU MTN provides transportable, worldwide training reciprocity for service members. In addition, the MTN structure provides training in strategically critical areas throughout the world (i.e., Afghanistan, Iraq, and Korea), on operational platforms (i.e., aboard aircraft carriers), and at remote sites where civilian training would not be available. These capabilities are essential to military medical readiness. **The USU MTN is the only American Heart Association affiliate with worldwide reciprocity for its health care providers**.

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MTN Generates Significant Savings for DoD - $11,997,930. Department of Defense sites affiliated with the MTN are approved to conduct self-sustained resuscitative and trauma medicine training. This continues to prove cost-effective for the Military Health System because it eliminates the need to pay premium training costs for civilian resuscitative and trauma medicine programs. For example, during Fiscal Year 2004, 232,884 defense personnel were trained through the USU MTN. The average commercial cost for providing this training is conservatively estimated at $12,957,874. The cost avoidance generated for the DoD during 2004, an estimated total of $11,997,930, was calculated by subtracting all of the USU MTN Office operating costs, to include civilian and military manpower provided by the three Services, from the average commercial cost ($12,957,874 - $959,944 = $11,997,930).

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DOD CENTER FOR EDUCATION AND RESEARCH IN PATIENT SAFETY

Establishment. In the Summer of 2003, the Department of Defense (DoD) Center for Education and Research in Patient Safety (CERPS) was established at USU within the Continuing Education for Health Professionals Directorate.

Mission. The DoD Center for Education and Research in Patient Safety engages the Military Health System Patient Safety Program (MHSPSP) educational needs at the undergraduate, post-graduate, and staff levels of health care practitioners. Particular emphasis is placed on the specific patient safety education and research needs of MHSPSP beneficiaries, command, and administrative staff.

Future Activities. Since the establishment of CERPS in 2003, the scope of activities has been expanded. CERPS developed curriculum for the Department of the Navy for its BMDOC and AMDOC Programs; these materials will be made available to the Army and the Air Force. CERPS will also open a new patient safety website to address the educational needs of medical and nursing students, health care providers, and staff throughout the MHS. In addition, educational programs are under development for CERPS' on-line distance learning activities to introduce and sustain the DoD patient safety initiatives.

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VII. THE ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE

The Armed Forces Radiobiology Research Institute distinguished itself by exceptionally meritorious achievement from 11 September 2001 to 20 June 2003, in response to acts of terrorism and nuclear/radiological threats at home and abroad. The Institute's expert guidance and critical training and information services became especially evident with the September 11, 2001, terrorist attacks on the World Trade Center and the Pentagon, followed by the anthrax threat to the nation's mail system, all while nuclear/radiological dangers abroad demanded attention. The Institute's military and civilian employees provided expert advice and extensive training to the military services; to regional, state, and federal government organizations, including the White House staff; and to civilian first responders, including those in New York City and Washington, D.C. When anthrax-contaminated mail threatened to shut down the mail system, the Institute's scientists, engineers, and technical and administrative staffs significantly aided various federal agencies and the Office of the President of the United States to protect and decontaminate the distribution system. At the same time, the Institute supported national antiterrorism programs and military exercises and operations. For Operation ENDURING FREEDOM in Kuwait, the Institute developed emergency response plans; and for Operation IRAQI FREEDOM, it provided guidance on treatment of personnel with embedded depleted uranium or tungsten alloy fragments and conducted studies on the use of ionizing radiation to decontaminate human remains. By their exemplary performance of duty, the members of the Armed Forces Radiobiology Research Institute have brought great credit upon themselves and to the Department of Defense.

- **Donald Rumsfeld, Secretary of Defense,** Citation to accompany the Joint Meritorious Unit Award, signed on February 17, 2004.

RELEVANCE

Background. The Armed Forces Radiobiology Research Institute (AFRRI), a TriService organization, is located in a 173,242 square foot complex on the campus of the National Naval Medical Center (NNMC) in Bethesda, Maryland. AFRRI was chartered in 1961, to conduct relevant applied radiobiological research in support of the military medical mission and to support accidental or premeditated events involving nuclear weapons, nuclear reactors, radiological dispersal devices, and other nuclear/radiological situations. The AFRRI complex houses a 1 Megawatt TRIGA nuclear reactor, a cobalt-60 irradiation facility licensed for up to 400,000 Curies, a 54 Mev linear accelerator, a 100 Curie cobalt-60 chronic irradiation facility, a full-service veterinary facility accredited by the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) International, and a full complement of laboratory and administrative spaces. Particularly unique features of the TRIGA nuclear reactor are its ability to simulate the high prompt doses of gamma and neutron radiation from the detonation of a nuclear weapon and its two exposure rooms that can accommodate experimental work involving large-animal models and other large irradiation studies. Human resources consist of 160 professional, technical, and administrative personnel. About 60 percent are civilian; and, 40 percent are military personnel.

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Governance. On September 22, 1992, the Deputy Secretary of Defense approved a program decision memorandum and transferred the management of AFRRI from the Defense Nuclear Agency (DNA) to USU; the Director of AFRRI reports directly to the President of USU. An Administrative Plan for program execution and administrative support for the integration of AFRRI as an Institute within USU was coordinated by the USU Vice President for Administration and Management and the Director of AFRRI; the USU President approved the plan in October of 2000. The Office of the Director, Defense Research and Engineering (DDR&E) directly funded AFRRI's programs and provided management oversight of its research programs through the Director, Bio Systems.

On August 17, 2000, DDR&E suggested that USU revise its DoD Directive 5105.45 to reflect the placement of AFRRI within USU. That suggestion was followed and on November 13, 2000, the USU President approved a draft revision of the USU Directive as coordinated by the USU Vice President for Administration and Management and the Director of AFRRI, with the executive staff of both USU and AFRRI. Upon further guidance from the Office of the Secretary of Defense (OSD), the submission of the draft DoD Directive for OSD approval was postponed pending the reprogramming of funding lines.

In January of 2002, the OSD Comptroller approved Program Budget Decision (PBD) 203C that was to transfer funding and management responsibility for the AFRRI programs to the National Institutes of Health (NIH); AFRRI was to remain a DoD asset and NIH was to continue funding its programs on a reimbursable basis. The USU President, the Director of AFRRI, and other senior representatives of USU and AFRRI began a coordination effort with the Acting Director of NIH to develop plans for: 1) the implementation of a reimbursement process between NIH and DoD for the AFRRI programs; and, 2) the establishment of a program management strategy for AFRRI under a memorandum of understanding between DoD and NIH. Before this coordination process was completed, the transfer of AFRRI funding to NIH was disapproved during the Health and Human Services' Fiscal Year 2003 Appropriations Process. As a result, in November of 2002, PBD 630, *Congressional Adjustments to Investment Appropriations*, was issued placing funding authority for the AFRRI programs back with the DoD. At that time, it was too late in the DoD appropriations process to restore funding for AFRRI in Fiscal Year 2003. Thus, funding for the AFRRI programs during Fiscal Year 2003 required Prior Approval Reprogramming Authority; and, AFRRI was funded at its previously programmed amount. During Fiscal Year 2004, AFRRI funding was placed in the Defense Health Program by DDR&E and transferred to AFRRI through USU.

In February of 2004, the USU Office of the General Counsel was delegated by the USU President to finalize the coordination process for revising the University's DoD Directive 5105.45 to include AFRRI (final coordination to include the USU Board of Regents, the USU Executive Committee, the current AFRRI Board of Governors, the Navy Bureau of Medicine and Surgery, relevant offices in OSD, and others, as appropriate). During the February-March 2005 timeframe, USU was notified by OSD that AFRRI would continue to have its own DoD Directive 5105.33; however, the USU Directive 5105.45 would be updated to include reference to the AFRRI Director reporting to the USU President. Coordination is currently on-going.

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Mission. AFRRI must 1) conduct applied radiobiological research to develop militarily relevant medical countermeasures against radiation injuries; 2) maintain a Medical Radiobiology Advisory Team to support accidental or premeditated events involving nuclear weapons, nuclear reactors, radiological dispersal devices, and other nuclear/radiological situations; 3) advise the Joint Chiefs of Staff (J-4 Medical); the Deputy Assistant to the Secretary of Defense, Nuclear Matters; the Joint Forces Command; and, the

Surgeons reporting to the Combatant Commanders on medical nuclear defense; and, 4) train DoD medical personnel on the management and treatment of radiation casualties (Medical Effects of Ionizing Radiation [MEIR] Course).

> **I want to thank you personally for the help we at CIA have received from AFRRI. CIA has been committed to ensuring the safety of our mail and AFRRI has been absolutely essential in our efforts. The assessment of the effectiveness of our mail treatment processes would be impossible without your help.** *(Prior to September 11, 2001, and the distribution of anthrax through several United States Post Offices, AFRRI researchers had studied the effects of irradiation on biological agents and had established a standard dosage of radiation necessary to eradicate anthrax spores. The researchers used a harmless surrogate spore that mimics the biological properties of live anthrax spores. This non-toxic spore can easily be placed in an envelope, and then tested after irradiation procedures at a specific mailing distribution area; the spore allows extensive testing for quality assurance to ensure the safety of those individuals who will handle the mail. Since September 11th, through 2004, AFRRI scientists have provided relevant information and on-going briefings to numerous entities such as the White House Medical Unit, the House Science Committee, Senate and House professional staff, the Department of Homeland Security, the Centers for Disease Control, the Armed Forces Institute of Pathology, the General Accounting Office, and the Federal Bureau of Investigation.)* **Specifically, I want to point out the following individuals for their superb effort: Gregory Knudson, Ph.D.; Mike Shoemaker, Ph.D.; and, Thomas Elliott, Ph.D. They have been most gracious and accommodating to our needs at the CIA. Without the help of these individuals, we at CIA would not have been able to achieve our goals as quickly. It has been and will continue to be a pleasure to work with these individuals.**
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> - **Dr. Brian Hollibush, Environmental Health and Preventive Medicine Officer, Central Intelligence Agency,** Letter to **Colonel Robert Eng, Director, AFRRI,** dated May 8, 2002.

A Unique Program. There is no other comprehensive, militarily relevant radiobiological research program like that at AFRRI. While several initiatives exist in universities and private industry to develop pharmacologic strategies to prevent collateral tissue damage in radiation therapy patients, no other program exists to address the spectrum of radiological injuries anticipated under combat situations involving the use of nuclear or radiological weapons. AFRRI does, however, leverage findings from private sector initiatives to develop countermeasures not only to prevent injuries but also to treat and assess radiological injuries under military operational scenarios. ***Only AFRRI offers a program dedicated to these special military requirements.*** And, ***no other program within the Department of Defense addresses medical radiological defense research requirements***.

The AFRRI complex was designed and built to conduct radiobiology research and to develop medical radiological countermeasures in support of the military medical mission. The TRIGA nuclear reactor provides an ideal source to simulate the prompt radiation pulse from a nuclear weapon. Although there are 49 of these small research reactors in the world, and 18 in the United States, ***only the AFRRI reactor is designed for, and is wholly dedicated to, applied medical radiobiology research for medical readiness***. The AFRRI's second major source is a cobalt-60 irradiation facility. It is designed to safely hold up to 500,000 Curies of cobalt-60, but is currently licensed for 400,000 Curies. Because this source

can produce a high exposure rate with monoenergetic gamma-rays, it is ideally suited for the high-energy photons needed in applied military radiobiology research. A separate cobalt-60 irradiation facility is also housed at AFRRI to provide a source of low-dose-rate gamma photon emissions to conduct radiobiology experiments simulating chronic exposure to low dose radiation sources.

Documented Relevance. Since the terrorist attacks of September 11, 2001, it has become apparent that the risk of deliberate attacks involving the use of radiological or nuclear devices is on the rise. A growing threat exists from small-scale conflicts, terrorist incidents, accidents, and even peacekeeping missions in troubled areas around the world. Each of these scenarios involves real prospects for the use of nuclear or radiological devices, or the uncontrolled or intentional release of hazardous radioactive materials, posing a challenge on the battlefield and to homeland security. Unlike a strategic nuclear exchange, which would devastate infrastructure and all but eliminate prospects for the delivery of any remaining health care resources, casualties of nuclear/radiological incidents in today's threat environments will expect to have quick access to sophisticated medical care. It is essential to ensure that the best possible products of today's technology are available to the personnel of the health care delivery systems who must respond to such disaster scenarios. The military has a clear need for information on the sources and complicating effects of radiation during wartime, terrorist and accident scenarios.

Military planning, deployment and employment decisions in response to nuclear/radiological incidents depend on information available only from test (i.e., experimental), theoretical and/or empirical (event-generated) data. The AFRRI has played a significant role in providing information to devise strategies for early response to high, acute doses of radiation. In addition, ...**"Needs have changed in response to the contemporary world's environment; low-dose, chronic exposures are more likely to occur. There is a growing concern to define accurately the consequences of a variety of such scenarios.... They (AFRRI) demonstrated dedication to, and focus on, the real and current need for information to deal with risk situations already being encountered, or likely to be encountered, by Armed Services Personnel. It was made clear that changing world conditions have posed new threats for which there are little or no data. The need for new data comes at a time when the scientific community's ability to respond has been severely restricted by worldwide closings of radiobiological research centers. AFRRI has value because it is designed and organized to generate these types of data, and because it is one of the very few places that can do so"** (American Institute for Biological Sciences (AIBS) Peer Review on AFRRI, Executive Summary, dated July 1996, pages 1 and 2).

Response Agreements with the Office of the Secretary of Defense Confirm AFRRI's Relevance to DoD. The AFRRI's provision of direct support to the Office of the Secretary of Defense (OSD) and the Joint Chiefs of Staff (JCS) validates its mission relevance and its value to national defense. Upon request during emergency situations, AFRRI deploys teams of technical and scientific experts as consultants to these offices.

March 2001 Technology Area Review and Assessment. The biennial Technology Area Review and Assessment (TARA), held during the week of February 26, 2001, in San Antonio, Texas, noted that advances in medical science and technology indeed portend the prospects that "radiation-induced injuries can be managed" and that major elements of AFRRI's program are "focused on an important problem, with potential impact on homeland defense." No changes were made to these findings during the last TARA conducted in March of 2003.

In summary, the DoD's annual funding of the Medical Radiological Defense Research Program at the Armed Forces Radiobiology Research Institute is a timely investment, which supports relevant medical requirements of the Services. A value-added benefit to DoD and national security is derived from AFRRI's pool of scientific and technical experts in government service, who are available on short notice to provide advice and guidance to high-level offices within DoD, during national emergencies. The AFRRI is poised to continue paying dividends well into the future by ensuring an enhanced medical readiness posture that will save lives and reduce injuries in nuclear/radiological and combined nuclear/biological/chemical (NBC) threat environments.

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TIMELINESS

Doctor Marburger, President Bush's Science Advisor, sent a six-person team, including two AFRRI scientists to the Lima, Ohio plant to evaluate the mail irradiation facility and process. AFRRI scientists, working with National Institutes of Standards and Technology personnel, assembled a container of mail with dosimeters and surrogate spores, took it to Lima, had it irradiated as a quality assessment check, and briefed Doctor Marburger on the results, which found no growth spores at the radiation dose recommended by AFRRI. Dr. Marburger will later brief several government agencies, including the Office of Homeland Defense, at the White House on the results.

- Weekly Activities Report, *Uniformed Services University*, Health Affairs, Office of the Secretary of Defense, November 5-9, 2001.

An Impressive Response. AFRRI routinely disseminates its research findings with the scientific community, within DoD, the private sector, and internationally. Its investigators' publications in peer-reviewed journals, presentations at professional conferences, and reports and recommendations to the TriServices and the Surgeons of the Combatant Commands provide timely information on the mitigation of radiation hazards and optimization of medical treatment strategies for radiation casualties. Research findings are also integrated into the AFRRI-sponsored accredited course on the Medical Effects of Ionizing Radiation (MEIR), the premier high level training medium available to the medical personnel of the Armed Forces for the management of radiological injuries. Attendance and presentations at national and international conferences ensures that AFRRI investigators stay abreast of the latest developments around the world. These activities provide an important source of critical feedback through direct peer interaction; and, they foster recruitment of other scientists who contribute independently to solving problems in radiobiology common to both the military and private sectors. Past studies focused primarily on high radiation doses, because the military was then concerned with the high prompt dose effects from nuclear weapons detonations. Today, ... **"the AFRRI investigators have been able to use this knowledge, and the experimental approaches, which allowed its development, to design reasonable and logical approaches to the extremely difficult problems of current interest that (in addition to on-going nuclear threats from terrorist activities) involve low doses and possible low dose rates.... AFRRI has always played a national and international role in solving radiobiological problems, interacting with NATO, sending response teams anywhere in the world where they are needed, and training physicians and military personnel to respond to radiation accidents. This role is expanding due to the default of other centers. Key to the ability to uphold this responsibility, and a major strength, is the combination of dedicated radiation sources, animal facilities, and the mixture of military and civilian personnel with expertise in many relevant fields. This allows a think tank approach to experimental design, rapid execution of experiments, and frugal use of resources, including experimental animals"** (AIBS Peer Review on AFRRI, dated July of 1996, page 2).

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AFRRI Fields Medical Training and Provides Rapid Response in Support of DoD Missions.

Support to the Office of Science and Technology Policy - December 2004. The AFRRI Scientific Director co-chairs the Radiological Nuclear Threat Countermeasures Working Group consisting of representatives from the Department of Health and Human Services, the Department of Homeland Security, the Department of Energy, the Department of Veterans Affairs, the National Aeronautics and Space Administration, and the Department of Defense. The Working Group is tasked to develop a list of countermeasures (including prophylactics, mitigators, and postirradiation treatments) and diagnostics (e.g., biodosimetry) that should be considered for acquisition by the Strategic National Stockpile Program and follow the development of new countermeasures to allow their consideration for acquisition as soon as appropriate.

Support to Mass Casualty Drill at NNMC - October 2004. Twenty-five AFRRI personnel participated as "victims," expert lecturers, drill evaluators, photographers, and reporters in the October 21, 2004 Bioterrorism Disaster Drill conducted at the National Naval Medical Center (NNMC) in Bethesda, Maryland. The drill tested the coordinated response among military and civilian hospitals to the mock explosion of a "dirty bomb." Altogether, 800 people, including 30 emergency response teams, participated in the day-long exercise that included NNMC, the Uniformed Services University of the Health Sciences, the Walter Reed Army Medical Center, the National Institutes of Health, the Montgomery County Emergency Services, and Suburban Hospital, which serves Montgomery County.

Support to Biodefense Methods Against Anthrax - June 2003 through September 2004. Two AFRRI scientists were invited to participate in setting up and reviewing studies that led to the approval of two biodefense methods for the detection of *Bacillus anthracis* spores (the bacterial pathogen that causes the disease anthrax). The Department of Homeland Security and the Department of Defense Office of Science and Technology Policy funded the studies conducted by AOAC International. The studies established a method for confirming the identification of pure cultures of *B. anthracis*, as well as, a hand-held assay for the presumptive detection of *B. anthracis* spores. The assay will be field-tested for use by first responders.

Support to the Department of Health and Human Services - September 2004. Two AFRRI personnel provided assistance to the Department of Health and Human Services during a national security event (the Republican National Convention).

Support to the Defense Threat Reduction Agency - September 2004. Three AFRRI military personnel supported the Defense Threat Reduction Agency at Malmstrom Air Force Base, Montana, during the exercise, *Diligent Warrior 04*.

Support to the Environmental Protection Agency - April 2004. ***The United States Environmental Protection Agency (EPA), in April of 2004, awarded its prestigious Gold Medal for Exceptional Service to two AFRRI research microbiologists who served as part of EPA's 19-member Brentwood Post Office Anthrax Crisis Exemption Team,*** which evaluated methods that might be used to inactivate deadly *Bacillus anthracis* spores that had contaminated the huge United States Postal Service Brentwood Processing and Distribution Center in Washington, D.C., and closed it on October 21, 2001. The researchers were the

only Department of Defense employees honored during 2004 with the EPA's highest honor; they were recognized for their extraordinary contributions to the safe and effective fumigation with chlorine dioxide gas to inactivate the anthrax spores. Chlorine dioxide gas had also been used earlier at the decontamination of the Senate Office Building, but use of the highly lethal gas at the Processing and Distribution Center was complicated by the size of the facility (633,000 square feet); by the need to maintain a precise concentration of the gas, relative humidity, and temperature within the space for at least 12 hours; and, by the proximity of neighborhood residents.

The Team grappled with unprecedented scientific issues: how to determine the nature and extent of *B. anthracis* contamination; how to set correct fumigation parameters allowing for temperature, relative humidity, gas concentration, and contact time; how to monitor inside the building to ensure that fumigation parameters were met; and, how to do extensive air and surface sampling after fumigation to confirm the absence of all viable spores. After a successful decontamination, the Processing and Distribution Center reopened on December 22, 2003. The AFRRI researchers continue to serve on the EPA Interagency Expert Panel on Efficacy Test Methods and Surrogates for Anthrax Spores, which meets quarterly.

Support to the Defense Threat Reduction Agency - February 2004. Three AFRRI military personnel supported the Defense Threat Reduction Agency in Texas and in Colorado for the exercise, *Unified Defense 04*.

Support to the Department of Defense Medical Training - 2004. During Fiscal Year 2004, AFRRI medical professionals and research experts provided the Institute's Medical Effects of Ionizing Radiation (MEIR) Course to 683 students at stateside and overseas venues. Health care and emergency response professionals who attended the course included 281 Army, 32 Air Force, and 79 Navy personnel as well as 291 students who were either Marine Corps, foreign military, Public Health Service, DoD civilian, or Coast Guard personnel.

Support to the National Pharmaceutical Stockpile Program - May 2003. An AFRRI physician serves as the co-chair of a joint Centers for Disease Control and Prevention/Department of Defense Working Group that is chartered to identify pharmaceutical agents for incorporation into the Nation's strategic stockpile to be available for emergency use in the event of nuclear or radiological disasters.

The AFRRI participated in a Radiological/Nuclear Threat Countermeasures Working Group, initiated in May of 2003. The Working Group was co-chaired by the Director of AFRRI and the AFRRI Scientific Director, with the participation of other AFRRI scientists. The Working Group was asked to: 1) define national requirements for therapeutics/protectants and diagnostics; 2) develop acquisition plans for the Strategic National Stockpile purchase of therapeutics/protectants and diagnostics; and, 3) develop a coherent radiological/nuclear threat countermeasures research and development agenda. The Working Group consisted of representatives from a broad range of Federal agencies and included a few key individuals from the private sector. Some of the agencies represented included: Health and Human Services; the Department of Defense; multiple representatives from the National Institutes of Health; the Centers for Disease Control; the Food and Drug Administration; the Department of Homeland Security (Strategic National Stockpile); the Department of Veterans Affairs; the National Aeronautics and Space Administration; and, the Department of Energy.

Support Provided to the Interagency Working Group on Test Methods and Surrogates for *Bacillus anthracis* - October 9-10, 2002. Senior AFRRI investigators were key participants by invitation for an October 9-10, 2002 Interagency Workshop sponsored by the Environmental Protection Agency (EPA). The workshop's goals were to identify the best non-harmful surrogate bacterial organisms to mimic the biological characteristics of *B. anthracis*, the bacterial agent of anthrax, and to establish collaborative research activities needed to assist the EPA in developing scientifically-based guidance on test methods and performance standards for the inactivation of *B. anthracis* spores. Other noted agencies participating in the workshop included the Centers for Disease Control and Prevention, the Defense Threat Reduction Agency, the Naval Surface Warfare Center, the Department of State, the Department of Energy, the National Institutes of Health, the National Institute of Standards and Technology, the Department of Justice, the Federal Drug Administration, the Lawrence Livermore National Laboratory, the Argon National Laboratory, the Department of Homeland Security, the University of Ottowa, and the Dugway Proving Ground.

Support to the European Union on Medical Preparedness for Nuclear/Radiological Events - 2002. As a result of AFRRI's participation in NATO's Research Technology Agency and its research and development programs for radiation medical defense, AFRRI was invited to participate in the European Union (EU) initiative entitled, *Medical Preparedness for Nuclear/Radiological Events*. The EBMT Nuclear Accident Subcommittee has three objectives: 1) conduct assessments of EU medical resources to effectively manage radiation-associated mass casualties; 2) provide guidance to EU members concerning current capacities and the requirements for extended capacities; and, 3) develop a robust network of cooperating EU medical facilities and trained personnel in order to better deal with future nuclear/radiological contingencies.

Support to the Centers for Disease Control and Prevention - July 18, 2002. On July 18, 2002, AFRRI staff provided senior representatives of the Centers for Disease Control and Prevention (CDC) with presentations covering the threats posed by radiological dispersal devices, surreptitious planting of radiation sources, improvised nuclear weapons, and sabotage of nuclear power reactors. The presentations included discussions on the appropriate use of potassium iodide to mitigate risks of thyroid cancer from exposure to radioactive iodine and an overview of AFRRI's role in emergency response, medical training, and research and development.

Support to the Combatant Commander, United States Southern Command, and the Department of State - March 14, 2002. On January 30, 2002, members of AFRRI's MRAT provided a briefing to the Acting Combatant Commander, United States Southern Command (USSOUTHCOM), and six other flag officers and representatives from the United States Department of State on the medical and psychological consequences of a radiological dispersal device (RDD) detonation in a foreign country. The DoD, in conjunction with the State Department, is using the information to develop emergency response plans for personnel assigned to United States embassies located around the world. On March 14, 2002, AFRRI personnel participated with the State Department in an exercise simulating the detonation of an RDD in a foreign embassy. The goal of the exercise was to educate participants on the threats and procedures for providing prompt medical assessment, triage and treatment. The AFRRI continues to provide medical and health physics support to the Department of State by serving on its Weapons of Mass Destruction (WMD) Incident Planning and Coordination Committee and its WMD Response Operations Control Group.

Support to the President's Science Advisor and Office of Science and Technology Policy - March 12, 2002. On March 12, 2002, the AFRRI Director and the head of AFRRI's Military Medical Operations Department briefed the Radiological, Nuclear and Conventional Threats Detection and Response R&D Working Group of the Office of Science and Technology Policy (OSTP) on the capabilities of AFRRI's Medical Radiological Advisory Team.

Training for National Guard Civil Support Teams - March 2002. A Presidential Directive following the incidents of September 11, 2001, established National Guard Civil Support Teams to provide State Governors with cadres of first responders specifically trained and equipped to deal with terrorist incidents involving chemical, biological, radiological, nuclear or explosive (CBRNE) incidents. In March of 2002, AFRRI's Medical Radiological Advisory Team (MRAT) hosted a two-week conference to train personnel assigned as first responders to the newly established civil support teams. The training included lectures on operational health physics, Federal/DoD regulations, risk analysis, radiological instrumentation, DoD and non-DoD radiological assets, and design characteristics of nuclear power plants, radiological dispersal devices and nuclear weapons. Learning objectives focused on decision-making during the crucial first 12 hours following a nuclear/radiological event. The conference was highly successful. As a consequence, the National Guard Bureau of Washington, D.C., has requested the AFRRI MRAT to provide training on an annual basis.

Support to the Vice President of the United States - February 7, 2002. On February 7, 2002, the AFRRI Director and other AFRRI staff briefed the Vice President's Senior Advisor for Medicine and Public Health and the Senior Advisor for Biodefense on the medical consequences of terrorist use of improvised nuclear weapons and radiological dispersal devices.

Support to United States Forces Command - February 12, 2002. On February 12, 2002, the AFRRI Director briefed the principal flag officer staff and Command Surgeon of the United States Forces Command (USFORSCOM) on the radiological risks from potential attacks on, sabotage of, or accidents involving nuclear power plants in areas of operation. The briefing included a review of the Food and Drug Administration (FDA) and DoD policies on the stockpiling and use of potassium iodide for the emergency treatment of personnel exposed to radioactive iodine, which can be released during events involving nuclear power reactors.

Support to the President of the United States - November 19, 2001. On November 19, 2001, members of AFRRI's Military Medical Operations Department spent the morning at the White House training the President's medical unit personnel on the medical effects of ionizing radiation and the latest preventive, assessment and treatment measures that can be applied to mitigate radiation-induced injury.

Medical Radiobiology Advisory Team - February 2001. The AFRRI Medical Radiobiology Advisory Team (MRAT) provides medical and health physics consultation and dose assessment capabilities to the United States military and private sectors around the world for contending with a broad spectrum of nuclear or radiological accidents, incidents, or injuries. For example, the team was on full alert after the terrorist attacks at the World Trade Center and at the Pentagon and during the most recent crisis between India and Pakistan. The AFRRI MRAT is a critical arm of the Defense Consequence Management Advisory Team,

fielded by the Defense Threat Reduction Agency, and is called upon to deploy worldwide in response to incidents involving nuclear weapons, radiological devices, or nuclear power reactor emergencies (i.e., an article in U.S. News and World Report, during February of 2001, illustrated an example of the heightened risk for a radiological event by citing the prospects for nuclear accidents at several locations across the former Soviet Union).

Support to the Secretary of Defense - January 10, 2001. On January 10, 2001, AFRRI provided the Office of the Secretary of Defense with the most current scientific information on the human bioeffects of depleted uranium resulting from various sources of exposure (dermal, inhalation and wounding). The information was used later that day by the Secretary of Defense to address the National Press Club on European concerns over DU exposures among NATO forces in the Balkans.

Response to a Request from the German Ministry of Defense - January 8, 2001. The upheaval within the NATO alliance, stemming from claims by some allied forces and their governments that depleted uranium (DU) exposures during their operations in the Balkans were the cause of serious personal illness, prompted the German Ministry of Defense to seek AFRRI's support in dispelling such claims. The request recognized AFRRI's worldwide leadership role and scientific expertise in studies on the health effects of chronic exposures to DU. Through AFRRI's capacity as Chair of Technical Group-006 of the NATO Human Factors and Medicine Panel, information was provided that greatly helped to defuse the crisis.

Capability to Assist in the Accident of the Russian Submarine Kursk - August 14, 2000. During the aftermath of the Russian submarine accident, AFRRI was asked by the Defense Threat Reduction Agency for medical capabilities that could have been offered to the Russians in anticipation of an official Russian request. AFRRI immediately responded with radiation biodosimetry support to assess the radiation dose to the surviving Russian sailors.

Response to the Tokaimura Nuclear Criticality Accident in Japan - October 2, 1999. AFRRI was in consultation with Dr. Haraguichi at the Tokaimura Prefecture Emergency Operations Center addressing his questions on public health and methods to mitigate the adverse radiophobia and psychological effects of the nuclear incident on the public. AFRRI also provided guidance to the United States Army Japan on measures to reassure the United States military members and their families that they were not in harm's way, to include the monitoring of food sources for the United States community.

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SCIENTIFIC MERIT

Internal and External Review Mechanisms Ensure Standards of Scientific Excellence. The USU and AFRRI have implemented internal and external review mechanisms for the systematic planning, review and analysis of AFRRI's programs to ensure the highest standards of scientific excellence.

Program Management. The AFRRI management has established a management system to provide clear guidance to investigators and ensure oversight of all funded work. The system provides a road map for achieving the overarching objectives of the two appropriated funding lines for *Medical Technology* and *Medical Advanced Technology* in the area of radiobiology research. It serves as the basis for the planning, funding, review, and analysis of all work; and, it ensures that resources are appropriately allocated so that programmatically relevant goals are achieved within specified timeframes and clearly defined metrics of acceptability.

Program Areas. The AFRRI Director and the AFRRI Scientific Director jointly define *Program Areas* that are the major programmatic thrusts for addressing military requirements relevant to AFRRI. A Team Leader heads each *Program Area*, providing scientific leadership and coordination of the component scientific investigations (*projects*).

Projects. *Projects* are the basic work unit of research. Each *project* is described in a detailed written protocol that conveys the study's specific aims, hypothesis, approach, program relevance, milestones, accomplishments, and assessment of resource requirements. Each protocol is reviewed and approved annually by the Scientific Director of AFRRI; recommendations for funding are forwarded to the AFRRI Director before work is initiated. Each *project* lasts up to three years, at which time, a new protocol can be written to continue the line of work, if warranted. An external panel of subject matter experts is convened annually to review all new protocols.

Quality Assurance. To ensure the quality of the research programs at AFRRI, a three-part process has been implemented to regularly evaluate the scientific efforts, military relevance, and management oversight/procedures. The quality assurance process for all AFRRI research projects includes: 1) an annual internal assessment of direction, progress, and scientific plans; 2) external peer review by a panel of subject matter experts for all new protocols; and, 3) periodic broad programmatic reviews for scientific merit and program relevance. In addition, steering committees of experts from outside of AFRRI have been established for those projects where more frequent review and advice is deemed appropriate.

Annual Internal Reviews. All on-going research projects are formally reviewed each year by AFRRI management. Investigators must submit written summaries of their progress on approved protocols. These annual progress reports provide the opportunity for critical assessment of the goals attained; and, if necessary, reevaluation of the project's direction. This internal review process provides program managers, the Scientific Director, and the AFRRI Director with assurances that projects are on course and properly resourced.

External Peer Review. All new research projects are subject to a rigorous peer review by subject matter experts. Investigators must write detailed protocols for up to three years of effort. A peer review panel convenes annually to discuss the scientific merit of the new projects. This external review process ensures that the research is scientifically sound and provides investigators with valuable suggestions for new approaches and directions. The last review of selected protocols occurred during the Fall of 2004.

Comprehensive Program Reviews. Biennially, the Biomedical Defense Science and Technology Reliance Panel, under the auspices of the Armed Services Biomedical Research Evaluation Management (ASBREM) Committee, evaluates the military relevance and scientific merit of AFRRI's research programs through the Technology Area Review and Assessment (TARA) process. The most recent TARA was held in March of 2003. In addition, an independent review by the American Institute for Biological Sciences (AIBS) is conducted periodically. The AIBS program assessment focuses primarily on scientific review and analysis; and, it also considers how effectively AFRRI/USU management executes the planning and funding processes.

Department of Radiation Biology, School of Medicine. The new academic Department of Radiation Biology, within the USU School of Medicine (SOM), was established in 2004. The AFRRI Scientific Director was appointed Founding Chair of the new department and, in this capacity, reports directly to the Dean of the School of Medicine. The SOM Department of Radiation Biology has a basic research foundation oriented to supporting the Medical Radiological Defense Research Program mission of AFRRI. The Department will offer courses in the medical effects of ionizing radiation and, as resources permit, will establish a degree granting program for radiobiology.

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The Quality of AFRRI's Science Measures Well Against National Scientific Capabilities and Standards for Technical Merit.

Technology Area Review and Assessment. The Technology Area Review and Assessment (TARA) panel of March 2001 noted that AFRRI's research thrusts are characterized by ***quality, hypothesis-driven science*** and major elements of the program that employ ***novel methodology*** and ***logical approach*** in executing studies that have the ***potential for significant impact on treatment decisions***. The TARA panel also noted that the productivity of AFRRI's science is reflected in its record of peer-reviewed publications and other printed materials. (A Summary of AFRRI Publications for 2001-2004 is provided at Appendix C.)

The most recent TARA was held in March of 2003. The review panel found no serious concerns and during a briefing to the Defense Science and Technology Advisory Group (DSTAG) on the TARA outcome for AFRRI, the following comments were conveyed: ***1) Significant increase in speed and accessibility of methodology for geographic sampling of populations following a radiological incident; and, 2) Well structured studies; good linkage to transition partner***.

AFRRI's Research Programs Are Globally Recognized. The AFRRI research programs are highly regarded throughout the scientific and medical communities, both nationally and internationally. The following selected accounts of recent activities and engagements testify to this fact:

NATO Research Task Group (RTG) 099 for Radiation Bioeffects and Countermeasures. As Chair of RTG-099, the AFRRI Biodosimetry Team Leader has set in motion the group's first meeting to be held on June 21-23, 2005, at AFRRI. As stated in its Terms of Reference, the group's purpose is to "develop the scientific basis for new and improved methods to prevent, assess, treat, and manage casualties and long-term health effects associated with ionizing radiation exposure from evolving threats in military operations." The RTG-099, which is under the NATO Human Factors and Medicine Panel, has the following goals: 1) develop broad-spectrum bioassessment tools for sensitive, accurate, and reliable detection of radiation-associated injuries; 2) establish underlying bases of health-compromising, performance-decrementing radiation injuries at the molecular, cellular, and organ-system levels; and, 3) based on established origins and mechanisms of radiation-induced pathology induction, develop effective protocols to prevent and treat initial radiation injuries that would otherwise cascade into overt disease, compromising the health and performance of the personnel so affected;

NATO Research Task Group 006 for Radiation Injury and Medical Countermeasures. AFRRI's Radiation Casualty Management Team Leader held the Chair of the NATO Research Task Group 006 for Radiation Injury and Medical Countermeasures. This task group fell under the Human Factors and Medicine Panel of NATO and its membership included radiobiology experts from 13 NATO countries, with Australia as an observer nation; the AFRRI Biodosimetry Team Leader was requested to Chair the follow-on NATO Research Task Group 099 and to carry forward the work of Task Group 006, during 2004;

National Cancer Institute. In December of 2001, AFRRI scientists participated in organizing and conducting an interdisciplinary workshop sponsored by the National Cancer Institute (NCI) to address scientific progress in molecular, cellular and whole animal radiobiology and biodosimetry, and the impact on current and future treatments to prevent or ameliorate radiation damage to normal tissues. A report of the meeting entitled, *Molecular and Cellular Biology of Moderate Dose Radiation and Potential Mechanisms of Protection*, appeared in Radiation Research, Volume 159, pages 812-834, during 2003. During Fiscal Year 2004, AFRRI scientists participated in the NCI workshop, *Models for Evaluating Agents Intended for the Prophylaxis Mitigation and Treatment of Radiation Injuries*, and co-authored the report that appeared in Radiation Research, in December of 2004;

HazMat Explo 8 Conference. A senior AFRRI medical officer was an invited speaker at the *November 2004 HazMat Explo 8 Conference* held in Las Vegas, Nevada. He lectured on the emergency management of radiation casualties and the treatment of victims with significant radiation exposure;

National Research Council's Committee on Standards and Policies for Decontaminating Public Facilities Affected by Exposure to Harmful Biological Agents: How Clean Is Safe? An AFRRI research microbiologist/pharmacologist was invited to speak at the Committee's October 14, 2004 meeting in Woods Hole, Massachusetts; he shared his expertise, which was demonstrated during environmental testing at the *Bacillus anthracis* contaminated Brentwood Post Office and as a member of the Intergovernmental Environmental Clearance Committee;

United Kingdom Ministry of Defense. A senior AFRRI scientist provided a briefing to Doctor John Jenner, from the United Kingdom, at the AFRRI complex in Bethesda, Maryland, on October 12, 2004. The topic was the investigation of the health effects of embedded tungsten alloy fragments in rats, an embedded WA project overview;

United States and United Kingdom Information Exchange Agreement 1443 Meeting. A senior AFRRI scientist presented information on tumor induction in rats caused by embedded tungsten alloy fragments at the meeting conducted by the United States Army Research Laboratory's Weapons and Materials Research Directorate located at Aberdeen Proving Ground, Maryland, on June 24, 2004;

National Institute for Allergy and Infectious Diseases. The AFRRI Scientific Director served as a session chair at the National Institute for Allergy and Infectious Diseases (NIAID) meeting on *Animal Models for Radiation Injury, Protection, and Therapy*, which was held on May 25-26, 2004;

NATO Human Factors and Medicine Panel Symposium. An AFRRI senior scientist was invited to speak at the NATO Human Factors and Medicine Panel Symposium entitled, *NATO Surveillance and Response: Research & Technology Opportunities and Options*. The symposium took place on April 19-21, 2004, in Budapest, Hungary;

Military and Civilian Federal Agencies. An AFRRI researcher was an invited participant in the *Second Civilian-Military Anthrax Response Technical Workshop* held on April 13-14, 2004. The workshop enabled the sharing of information on the state of technologies and procedures associated with anthrax detection and sampling, risk assessment, and decontamination;

International Atomic Energy Agency Working Group. AFRRI scientists are invited members of the International Atomic Energy Agency's (IAEA) Working Group tasked to review and update the agency's Biodosimetry Manual (IAEA Report No. 260). This manual serves as the current basis for the standardization of cytogenetic-based assays for radiation dose assessment. ***The updated manual, released in 2001, includes, for the first time, reference to the premature chromosome condensation assay pioneered and published by the AFRRI Biodosimetry Team***. In addition, during November of 2002, the IAEA invited two AFRRI staff members to review and contribute to the updating of official guidance on *Generic Procedures for Medical Response during Nuclear and Radiological Emergency*. Coordination with the IAEA has been ongoing; draft #12 of an updated biodosimetry manual was submitted for review in April of 2004;

The National Council on Radiation Protection and Measurements. In 2003, the National Council on Radiation Protection and Measurements (NCRP) elected an AFRRI senior scientist to serve a four-year term on the Council. This AFRRI scientist, as the Chair of the Program Committee for the Annual Scientific Meeting of the NCRP, put together the April 2004 Symposium, *Advances in Consequence Management for Radiological Terrorism Events*. In addition, during 2004, AFRRI scientists were invited to participate in the NCRP Committee's development of two new reports on radiation injury and terrorist events;

United States Northern Command. Two AFRRI staff members, a researcher and a radiation specialist, were invited to brief at the *United States Northern Command's Mass Fatality Workshop*, held on March 23, 2004; they addressed radiation decontamination of anthrax-contaminated remains;

Japanese Ground Self Defense Force. AFRRI directors and scientists briefed six officers from the Japanese Ground Self Defense Force on March 16, 2004; AFRRI personnel addressed the visitors' interests in the effects of exposure to radiation resulting from radiation dispersal devices and in the use of radiation as a countermeasure to biological warfare agents. Topics included nuclear/radiological medical readiness, military medical operations, and the neutralization of biological agents in the mail. The visit included a demonstration of AFRRI's *Biodosimetry Assessment Tool* software application and tours of the research reactor facility, the gamma irradiation facility, and AFRRI's animal facility;

NATO Workshop. Three AFRRI scientists were invited speakers at the *NATO Advanced Research Workshop* held on March 9, 2004, in Budapest, Hungary. They addressed their involvement in combating terrorism directed through the United States mail, the radiation decimal reduction curve for *Bacillus anthracis* Ames, and the inactivation of biological and chemical warfare agents with ionizing and non-ionizing radiation;

Department of Veterans Affairs. AFRRI scientists presented pertinent information to the Department of Veterans Affairs Research Advisory Committee on Gulf War Illness in Washington, D.C., on February 24, 2004;

Defense Research and Development Canada. The AFRRI Scientific Director presented information on the health effects of depleted uranium with an overview of AFRRI's research at the *Defense Research and Development Canada (DRDC) Depleted Uranium-Technical Meeting* held in Ottawa, Canada, on February 19-20, 2004;

New York City Office of the Chief Medical Examiner. An AFRRI scientist, addressing radiation decontamination of biological warfare remains, was an invited speaker at a February 11, 2004 meeting attended by representatives of the New York City Police and Fire Departments and Emergency Management Services and Planning Operations as well as by representatives from the Department of Homeland Security, the Federal Bureau of Investigation, and the Department of Defense;

United States Army Heavy Metals Office, Stevens Institute of Technology. A senior AFRRI researcher presented AFRRI's findings on tumor induction in rats caused by embedded tungsten alloy fragments at the *Heavy Alloys Workshop Annual Meeting* held in Hoboken, New Jersey, on February 10-11, 2004;

United States Army Center for Health Promotion and Preventive Medicine. A senior AFRRI scientist briefed the United States Army Center for Health Promotion and Preventive Medicine (CHPPM) Commander, Brigadier General William T. Bester, on January 22, 2004, at Aberdeen Proving Ground, Maryland; the topic was on AFFRI's research involving the preliminary observation of tumor induction in rats caused by embedded tungsten alloy fragments;

National Institute of Allergy and Infectious Diseases. In the Fall of 2003, under an interagency agreement between AFRRI and the National Institute of Allergy and Infectious Diseases (NIAID) to establish a cooperative relationship, NIAID committed to provide AFRRI with funding to support several studies of mutual interest on the development of medical radiological countermeasures during Fiscal Year 2004; AFRRI scientists were asked to participate in numerous workshops and panels during 2004 to assist NIAID in determining the next steps for research in radiation biology. These workshops included *Animal Models for Radiation Injury, Protection, and Therapy*; a *Blue Ribbon Panel Meeting*; and, an *Animal Endpoints Workshop*;

International Standards Organization. Upon invitation, another AFRRI senior scientist serves as the United States Representative to the International Standards Organization (ISO) Working Group #18, which was convened during 2002, to develop performance standards for specialized laboratories performing radiation dose assessments using cytogenetic procedures. Working Group #18 produced standards for a cytogenetic reference assay, which were ratified by the ISO, in 2002. The working group continued the initiative to develop reference standards for a rapid TRIAGE-based cytogenetic assay, throughout 2003 to the present;

Department of Homeland Security. In 2003, an AFRRI-developed software application for use to support medical recording following a radiation accident, ***The Biodosimetry Assessment Tool***, was recommended for use during a CDC webcast and in a document prepared by the Department of Homeland Security Working Group on Radiological Dispersal Device Preparedness;

University Technology Development Fund. During 2003, an AFRRI Principal Investigator and three USU Co-Investigators secured a grant from the Maryland Technology Development Corporation's University Technology Development Fund (UTDF) to advance their studies in developing protective strategies against damage to normal tissues during radiation therapy for prostate cancer. The UTDF recognizes university researchers throughout Maryland for their potential contributions in their fields of study and to the economic vitality of the State. ***This award is a first for USU.*** A member of the Radiation Casualty Management Team is the Principal Investigator on the grant;

The World Space Congress. An AFRRI senior scientist was invited to present an abstract entitled, *Radiation Biodosimetry: Applications for Space Flight*, at The World Space Congress 2002/34th Committee on Space Research Scientific Assembly in Houston, Texas; a full manuscript of the abstract was published in Advances in Space Research, during 2003;

Presidential Office of Science and Technology Policy. The Director of AFRRI and the AFRRI Scientific Director served as Co-Chairs on a Federal-level working group under the direction of the President's Office of Science and Technology Policy to assess radiological/nuclear threat countermeasures, during 2003. A product of the working group included a prioritized listing of necessary research to provide medical radiological defense. An AFRRI senior scientist Co-Chaired the Biodosimetry Subgroup to the Working Group;

National Disaster Medical System Conference. An AFRRI senior scientist was an invited speaker on *Biodosimetry Options for Clinicians Responding to a Mass Radiation Casualty Event* at the 2003 National Disaster Medical System Conference held in Reno, Nevada;

Sixth Annual Force Health Protection Conference. Three AFRRI scientists were invited speakers at the 6th Annual Force Health Protection Conference held in Albuquerque, New Mexico, in August of 2003;

International Congress of Radiation Research. Two senior scientist from AFRRI were invited speakers in a special session of the International Congress of Radiation Research entitled, *Bio-terrorism and Radiation, What to Do? What Research Is Needed?* The special session was held in Brisbane, Australia, in August of 2003;

The Health Physics Society. Two AFRRI scientists were invited speakers at the 2003 Topical Meeting of the Health Physics Society, in a Session entitled, *Biophysical and Biological Techniques for Retrospective Radiation Dosimetry*, held in Houston, Texas, on January 29, 2003;

National Institute of Standards and Technology. Two AFRRI scientists were invited speakers at the *11th Annual Meeting of the Council on Ionizing Radiation Measurements and Standards* at the National Institute of Standards and Technology held in October of 2002. The Council provides leadership and dissemination of information on a wide range of topics dealing with ionizing radiation measurements and standards;

Centers for Disease Control. An AFRRI senior scientist served as an invited expert in a Centers for Disease Control (CDC) Roundtable entitled, *The Identification of Emerging Strategies for Hospital Management of Mass Casualties from a Radiological Incident*, held in Atlanta, Georgia, during May of 2002;

International Conference on Low-Level Radiation Injury and Medical Countermeasures. AFRRI planned, organized and hosted a highly successful International Conference on *Low-Level Radiation Injury and Medical Countermeasures*. Held in November of 1999, the conference attracted over 147 participants and included several of the world's most preeminent radiobiologists. A combined total of 72 oral presentations and posters were given over the course of three days. The proceedings of the conference were published in a special issue of Military Medicine, the International Journal of AMSUS, Supplement to Military Medicine, Volume 167, No 2, in February of 2002;

The European Commission Directorate for General Research and Technical Development. One of AFRRI's senior scientists was invited to deliver a keynote lecture at the *Advanced Research Workshop on Protracted, Intermittent or Chronic Irradiation: Biological Effects and Mechanisms of Tolerance*. The workshop was an international meeting held at the University of Ulm, in Ulm, Germany, on May 14-17, 2001; it was sponsored by the European Commission Directorate for General Research and Technical Development, the International Searle Foundation, and the University of Ulm;

Department of Energy. An AFRRI senior scientist was an invited speaker at the *4th International Conference on the Medical Basis for Radiation Accident Preparedness* sponsored by the Radiation Emergency Assistance Center/Training Site (REAC/TS) of the Department of Energy. The conference was held in March of 2001, and addressed issues and current advances in the management of acutely irradiated or contaminated patients. The AFRRI Biodosimetry Team also organized and hosted a workshop, *Updates on the Current Dose Assessment Techniques: Biological*, in conjunction with the REAC/TS Conference;

International Conference on the Operational Impact of Psychological Casualties from Weapons of Mass Destruction. AFRRI planned, organized, and hosted a highly successful International Conference on the *Operational Impact of Psychological Casualties from Weapons of Mass Destruction*, in July of 2000. Keynote speakers included the Principal Deputy Under Secretary of Defense for Personnel and Readiness and the Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense; and,

The National Academy of Sciences and the United Kingdom Ministry of Defense. Members of the AFRRI Depleted Uranium (DU) Team were invited to make formal presentations on AFRRI's DU research findings to the National Academy of Sciences, the Institute of Medicine, the United States Army Heavy Metals Office, the United Kingdom Ministry of Defense, and the Committee on Health Effects Associated with Exposures during the Gulf War (National Academy of Sciences, Washington,D.C.), on June 14, 1999. Information presented by the DU Team was included in the published book summarizing the Committee's findings: Gulf War and Health, Volume 1. Depleted Uranium, Pyridostigmine Bromide, Sarin, Vaccines, (Fulco, C.E., C.T. Liverman, H.C. Sox, eds.), National Academy Press, Washington, D.C., 2000.

***Other Representative Oral Presentations by AFRRI Scientists During 2004*:**

Biological Dosimetry Requirements: Postexposure Injury Assessment for Medical Management, 2nd Annual 20/20 Layered Membrane Symposium, 9700 Great Seneca Highway, Rockville, Maryland, November 3, 2004;

Current and Future Biological Dosimetry, 13th Annual Meeting of the CIRMS Biological Dosimetry Measurements and Standards, National Institute of Standards and Technology, Gaithersburg, Maryland, October 25-27, 2004;

Diagnostic Cytogenetic Biodosimetry: Automation and Validation, Council for Ionizing Radiation Measurements and Standards Symposium, October 25-27, 2004;

Ionizing Radiation Inactivation of Medically Relevant Viruses, Consensus on Ionizing Radiation Measures and Standards Meeting, National Institute of Standards and Technology, Gaithersburg, Maryland, October 25-27, 2004;

Inactivation of Simulant Biological Warfare Agents by Ionizing Radiation, Council on Ionizing Radiation Measurements and Standards, National Institute of Standards and Technology, Gaithersburg, Maryland, October 25, 2004;

Radiation Inactivation of Biological Threat Agents: Principles and Lessons Learned, American Type Culture Collection, October 18, 2004;

Biological Dosimetry Requirements: Postexposure Injury Assessment for Medical Management, Strategic Plan and Research Agenda for Medical Countermeasures Against Radiological and Nuclear Threats, National Institutes of Health (NIH), National Institute of Allergy and Infectious Diseases, Bethesda, Maryland, October 14, 2004;

Radiation Research Infrastructure, National Institutes of Health (NIH), National Institute of Allergy and Infectious Diseases Blue Ribbon Panel Meeting, October 14, 2004;

AFRRI's Support for the United States Postal Service: Environmental Testing at Brentwood and ECC Service, National Academies of Science, National Research Council Study, October 8, 2004;

Leukemic Transformation of Hemopoietic Cells in Mice Internally Exposed to Depleted Uranium, National Institute for Occupational Safety and Health Heavy Metals Meeting, Morgantown, West Virginia, September 12-15, 2004;

Postexposure Injury Protein Biomarker Assay for First Responders, 33rd Annual Meeting of the European Society of Radiation Biology, Budapest, Hungary, August 25-28, 2004;

Radioprotection by Natural and Synthetic Antioxidants, European Society for Radiation Biology, Annual Meeting, Budapest, Hungary, August 25-28, 2004;

Radioprotection by Soy Isoflavones, European Society for Radiation Biology, Annual Meeting, Budapest, Hungary, August 25-28, 2004;

5-Androstenediol: A Long-Acting Natural Systemic Radioprotectant with Low Toxicity, the European Society for Radiation Biology, Annual Meeting, Budapest, Hungary, August 27, 2004;

Radiation Protection by Alpha-Tocopherol Isomers and Esters, United States Army Center for Health Promotion and Preventive Medicine, Force Health Protection Meeting, Albuquerque, New Mexico, August 9-12, 2004;

Biodosimetry: Postexposure Radiation Injury Assessment Tools for First Responders: AFRRI's Contribution to Collaborative Efforts in Biodosimetry, Department of Homeland Security Workshop, Bethesda, Maryland, July 10, 2004;

5-Androstenediol: A Long-Acting Natural Systemic Radioprotectant with Low Toxicity, AFRRI Seminar, Bethesda, Maryland, July 9, 2004;

Effects of Radiation in Combination with Biological or Chemical Warfare Agents, Health Physics Society Summer School, July 6-9, 2004;

Infection Following Ionizing Radiation: Susceptibility and Therapy, National Institutes of Health (NIH), National Institute of Allergy and Infectious Diseases Meeting on Animal Models for Radiation Injury, Protection, and Therapy, Bethesda, Maryland, May 25-26, 2004;

5-Androstenediol: A Long-Acting Natural Systemic Radioprotectant with Low Toxicity, Animal Models for Radiation Injury, Protection, and Therapy Workshop sponsored by the National Institute of Allergy and Infectious Diseases, Bethesda, Maryland, May 25, 2004;

Biodosimetry Capabilities for Acute, Protracted, and Prior Radiation Exposure, National Institutes of Health (NIH), National Institute of Allergy and Infectious Diseases Workshop on Animal Models for Radiation Injury, Protection, and Therapy, May 20, 2004;

Radiation Inactivation of Biological Threat Agents: Principles and Lessons Learned, NWEUG, Basingstoke, United Kingdom, May 9-14, 2004;

5-Androstenediol: A Long-Acting Natural Systemic Radioprotectant with Low Toxicity, the Cleveland Clinic, Cleveland, Ohio, May 6, 2004;

Radiation Protection by Alpha-Tocopherol Succinate, Medical Research and Material Command, DAMD, April 26-28, 2004;

Development of a Quantitative RT-PCR Assay for Simultaneous Measurement of Four Amplicons with Applications for Biological Dosimetry, Radiation Research Society's 2004 Annual Meeting, Adams Mark Hotel, St. Louis, Missouri, April 24-27, 2004;

Diagnostic Biodosimetry Response for Radiation Disasters: Current Research and Service Activities at AFRRI, Human Factors and Medical Panel Symposium, NATO Medical Surveillance and Response, Budapest, Hungary, April 19-21, 2004;

Development of a Quantitative RT-PCR Assay for Simultaneous Measurement of Four Amplicons with Applications for Biological Dosimetry, Experimental Biology, Washington, D.C., April 18-20, 2004;

Current and Future Biological Dosimetry, National Council on Radiation Protection and Measurements (NCRP) Annual Scientific Meeting, Arlington, Virginia, April 14-15, 2004;

Combating Terrorism Directed through the United States Mail: Radiation Decimal Reduction Curve for Bacillus anthracis Ames, NATO Advanced Research Workshop, Budapest, Hungary, March 7-9, 2004;

Inactivation of Biological Warfare Agents by Ionizing Radiation, NATO Advanced Research Workshop, Radiation Inactivation of Bioterrorism Agents, Budapest, Hungary, March 7-9, 2004;

Health Effects of Depleted Uranium: Overview of AFRRI Research, Depleted Uranium, Technical Meeting, Defense R&D Canada, Ottawa, Canada, February 19-20, 2004;

DNA Identification by Short Tandem Repeat (STR) Analysis after 2 Decontamination of Human Autopsy Specimens by Ionizing Radiation, 56th Annual Meeting, American Academy of Forensic Sciences, Dallas, Texas, February 16-21, 2004;

Decontamination of Human Autopsy Specimens by Co Gamma-Photon Irradiation and Human DNA Identification by Short Tandem Repeat Analysis of Irradiated Tissues, American Academy of Forensic Sciences Annual Meeting, Dallas, Texas, February 16-17, 2004;

Inactivation of Bacillus *Spores with Ethylene Oxide*, Office of Science and Technology Policy, Executive Office of the President, and the Department of Homeland Security, Washington, D.C., January 23, 2004; and,

Biodosimetry Tools Supporting Medical Recording During Radiation Casualty Incidents, Health Physics Society Summer School Book, 2004.

***Representative Poster Presentations by AFRRI Scientists During 2004*:**

Clindamycin and Moxifloxacin Therapy for Bacillus anthracis *Infection in Co-Gamma-Irradiated Mice*, ICAAC, Washington, D.C., October 30 through November 2, 2004;

Preconceptional Paternal Exposure to Embedded Depleted Uranium Fragments, International Agency on Cancer Research: Short-Term Models of Carcinogenesis, October 19, 2004;

Mental Health Support in Radiation Incidents through Biodosimetry, 2004 Disaster Mental Health Institute Meeting, Rapid City, South Dakota, September 29 through October 3, 2004;

Cytogenetic Laboratory Automation and High-Throughput Analysis for Radiation Dose Assessment, European Society for Radiation Biology, Annual Meeting, Budapest, Hungary, August 25-29, 2004;

Protection Against Ionizing Radiation Injury by a Benzyl Sulfone Analog, Medical Research and Material Command, Principal Investigator's Meeting, Puerto Rico, April 26-28, 2004;

Susceptibility of Prostate Cancer Cells to Lipid Peroxidation, Radiation Research Society Annual Meeting, April 12, 2004;

Priority Research Areas for Radiological/Nuclear Threat Countermeasures, Radiation Research Society Meeting, April 6, 2004; and,

Radiation Dose Assessment by Fluorescent Microsphere-Based Immunoassays, The Society of Armed Forces Medical Laboratory Scientists Annual Meeting, Boston, Massachusetts, February 22-27, 2004.

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TECHNICAL QUALITY

The Transition of New and Improved Medical Technologies. AFRRI's Science and Technology Programs are soon expected to transition new and improved medical technologies into advanced development with Food and Drug Administration (FDA) approval and eventual fielding.

Six Defense Technology Objectives (DTOs) Guide the Thrust of AFRRI's Research. AFRRI's research programs present a strategic commitment that leans heavily toward moving products of basic and developmental research into definitive applied studies of safety and efficacy aimed at transitioning new and improved medical technologies into advanced development, with FDA approval, and eventual fielding.

Since 1998, AFRRI had been assigned four Defense Technology Objectives (DTOs); during 2003, two additional DTOs were assigned to AFRRI. A DTO is a specifically recognized high priority element of technology advancement, which will be developed or demonstrated and has an anticipated delivery date. The product of a DTO is expected not only to enhance military operational capability, but also to address other important issues such as affordability and dual-use application, both of which receive special emphasis in the Defense Science and Technology Strategy.

Each of the following six DTOs supports the Quadrennial Defense Review (QDR) transformation operational goal to Project and Sustain United States Forces:

- ***Pharmacologic Prevention of Ionizing Radiation Injury.*** This DTO will develop advanced medical strategies for the prevention of radiation injuries. Pharmacologic interventions based on 5-androstene steroids (5-androstenediol and analogs), a novel class of radioprotectants, will be designed and tested in preclinical model systems. Results will define the decision point for possible transition to clinical testing of preventive treatments designed to maximize protection of personnel against early arising radiation syndromes (i.e., performance decrement and lethality). Effective mitigation of health consequences and performance-degrading effects will: 1) reduce the casualty load at medical treatment facilities; 2) sustain a more effective operational force after a radiation exposure event; 3) allow commanders to conduct operations in radiation field environments with reduced risk of decremented performance due to acute tissue injury; and, 4) reduce the negative psychological impact on personnel tasked to operate in contaminated environments. Significant reductions in acute casualty rates are expected based on recent studies;

- ***Cytogenetic-Based Diagnostic Biodosimetry System.*** This DTO will develop a biodosimetry assay system, based on chromosomal aberrations, that permits a rapid, high-throughput capability to assess ionizing radiation exposure for large numbers of casualties. Symptomatology and physical dosimeters, even when available, do not provide adequate diagnostic information to treat life-threatening radiation injuries. The objective assay system will provide physicians with the ability to definitively triage radiation victims, make appropriate treatment decisions, reduce the uncertainties associated with the variability of individual responses to radiation exposure, and discriminate between cases of whole, versus partial, body exposures;

- ***Toxicity of Embedded Depleted Uranium.*** The objective of this DTO is to determine the long-term health effects from exposure to depleted uranium (DU) fragments by characterizing multiple biological indices indicative of carcinogenicity using experimental model systems. Friendly fire incidents during the Gulf War produced DU shrapnel injuries among United States soldiers. The success of this new class of munitions guarantees its large-scale deployment by future adversaries, greatly increasing the number of casualties with DU fragment injuries. Little is known of the health risks from chronic exposure to embedded DU fragments, due in part, to DU's unique combination of radiological and toxicological properties. Current treatment strategies are in the most basic stage of development, and conventional diagnostic capabilities do not differentiate DU from other shrapnel injuries. This technology effort will define the pathologic consequences of chronic exposure to tissue-embedded DU fragments using generally accepted *in vitro* and *in vivo* experimental systems, and develop rapid assessment tools to identify personnel wounded with DU. Data will provide risk analyzers and managers with the information needed to develop policies addressing the health hazards of DU, and to establish safe and effective treatment strategies to minimize the long-term health risks from DU shrapnel;

- ***Medical Countermeasures Against Bacterial Sepsis after Irradiation.*** This DTO compares the efficacy of selected antimicrobial therapeutic agents against lethal or incapacitating radiation-induced bacterial sepsis in an irradiated rodent model. The specific aims are to: 1) determine *in vitro* the susceptibilities of enteric microorganisms to fluoroquinolones and cephalosporins after oral therapy; 2) calculate pertinent pharmacokinetic/pharmacodynamic (PK/PD) parameters of the tested antimicrobial agents to provide necessary data for dose extrapolation for human use; and, 3) determine the most efficacious therapy against polymicrobial sepsis.

Polymicrobial sepsis, caused by both Gram-positive and Gram-negative bacteria, is the leading cause of death following acute whole-body irradiation. Ionizing radiation depresses immunity and damages intestinal epithelium, both of which promote microbial translocation from the intestines and sepsis. Effective medical countermeasures for battlefield-sustained radiation mass casualties will require a radically different approach than what is used to manage patients receiving chemotherapy or fractionated radiation therapy under highly controlled conditions. Appropriate antimicrobial therapy is critical because bacteria develop resistance; use of an inappropriate antimicrobial therapy exacerbates the injury. Therapy must target only the endogenous and exogenous bacteria, both Gram-positive and Gram-negative, that cause sepsis and not the beneficial gut microflora, including anaerobic bacteria. Use of antimicrobial agents alone does not assure recovery from sepsis in an irradiated neutropenic animal. This effort will examine antimicrobial agents in a rodent model to enhance treatment strategies for radiation-induced infections. The long-term goal of this study is to develop an improved therapy against lethal or incapacitating ionizing radiation-induced bacterial sepsis in potentially large numbers of human casualties. Findings can be transitioned to preclinical studies to secure an FDA indication for antimicrobial therapy for managing bacterial infections in irradiated personnel. Results will allow recommendations for optimal choices for treatment that will enhance survival in military operational environments;

- ***Molecular Biomarkers-Based Diagnostic Biodosimetry System.*** This DTO will develop a biodosimetry assay system based on radiation dose-dependent alterations in gene expression and their encoded proteins. The system will measure changes in the relative concentrations of cellular messenger RNA and blood proteins (molecular biomarkers) and will provide for early, forward field-based radiation exposure assessment. Successful efforts will produce the following results: 1) molecular biomarkers can be measured rapidly (within hours) with the same hand-held and field-laboratory analytic systems used to identify biological weapons agents; 2) the assay system will provide the ability to distinguish individuals

not exposed, including the worried well, from exposed individuals (>10 cGy) and to determine individual exposure doses before the onset of symptoms to aid decision-making for medical triage; and, 3) assessment of a radiation dose early after exposure enhances the operational commander's situational awareness of the radiation exposure status of deployed forces and increases the prospect of reduced morbidity and mortality through early medical intervention; and,

- ***Prevention of Ionizing Radiation Injury by Isoflavones.*** This DTO will develop advanced medical strategies for the prevention of radiation injuries. Preliminary findings on the isoflavones, genistein and daidzein, demonstrate promising radioprotective efficacy with a single subcutaneous injection or multiple oral doses in a rodent model. The soybean and clover isoflavones, genistein and daidzein, will be evaluated in a preclinical animal model for radiation protection. Results will define the decision point for possible transition to clinical testing of preventive treatments designed to maximize protection of personnel against early arising radiation syndromes that result in mortality. Products of this effort will give the warfighter a level of protection against radiation-induced injury. Desirable characteristics of the products will include: 1) the provision of additional options for radioprotective therapies that can be used alone or in combination with other agents (i.e., 5-AED). Additive or even synergistic effects may be realized with combinations of drugs; 2) increased survivability and decreased morbidity; 3) reduced casualty loads at medical treatment facilities; 4) ability of commanders to conduct operations in radiation field environments with reduced risk; and, 5) reduced psychological impact on personnel tasked to operate in radiation environments.

Four Research Thrusts. There are four major AFRRI research thrusts, each carried out by a team of AFRRI investigators:

The Radiation Casualty Management Team. The Radiation Casualty Management Team investigates the full spectrum of medical countermeasures for an external exposure to ionizing radiation. Drug compounds are under development that can potentially elevate tolerable thresholds of ionizing radiation, leading to injury reduction and saved lives. The team investigates compounds that carry anti-oxidant or DNA damage surveillance and repair stimulating properties, or compounds that impart cell-cycle regulatory activities or immune system-enhancing characteristics that, when combined, provide important radioprotective qualities. The team also develops treatments for life-threatening injuries to the blood forming and gastrointestinal systems and the lungs. ***AFRRI investigators have demonstrated the significant radioprotective qualities of a non-androgenic steroid, 5-androstenedial (5-AED). The drug has no measurable toxicity at the doses being used to achieve protection.*** On-going research includes attempts to deliver similar protective efficacy by the oral route of administration and should lead to a product that can be more easily managed logistically and used by deployed military troops. In October of 2001, AFRRI investigators and representatives from its corporate partner presented preliminary data and a research plan for clinical trials of 5-AED at a pre-investigational new drug meeting before the United States Food and Drug Administration (FDA). The plan was favorably received; and, the FDA provided valuable guidance on how to proceed with pre-clinical trials toward an Investigational New Drug (IND) application.

Since that time, the corporate partner of AFRRI completed two pilot studies in nonhuman primates, during 2003, demonstrating efficacy when 5-AED is administered both pre- and immediately post-exposure to gamma photons. AFRRI also established a contract to carry out the pre-clinical safety and toxicity

studies under current good laboratory practices (cGLP) conditions that are required prior to an IND application. On April 1, 2005, the corporate partner, Hollis-Eden Pharmaceuticals, Inc., announced that it has initiated the first in a series of Phase I safety and pharmacokinetic clinical trials with NEUMUNE(TM) (HE2100) - *<Note: NEUMUNE(TM) = HE2100 = 5-Androstenediol-5-AED>*, its investigational immune regulating hormone for the treatment of Acute Radiation Syndrome. This first study is being conducted in the Netherlands. ***The corporate partner also stated that it continues to expect to file an IND application with the FDA in the first half of Calendar Year 2005 to initiate clinical studies in the United States. Safety and pharmacokinetic study results are expected to be available in a timeframe that enables the corporate partner to initiate a pivotal efficacy study in non-human primates in the second half of 2005***;

The Biological Dosimetry Team. The Biological Dosimetry Team has significantly advanced the science of radiation dose assessment and the application of biological methods for measuring exposure. The purpose of this research is to develop rapid assays to measure radiation exposure, which will enhance casualty management and treatment and will distinguish the *concerned public* from those with radiation injuries. Recent advancements include the demonstration of *proof-of-concept* that early measurements of molecular biomarkers can identify individuals exposed to radiation. Advancements also include the use of automation to enhance the throughput of the reach-back cytogenetic bioassay for triage and definitive dose assessment, using the *gold standard* cytogenetic bioassay, the lymphocyte metaphase spread dicentric bioassay. AFRRI scientists were key participants in the Department of Homeland Security (DHS) sponsored workshop, *Biodosimetry - Post-Exposure Radiation Injury Assessment Tools and Methods for Health Care Workers and First Responders*, conducted at USU on July 9-10, 2004. DHS has established a joint interagency working group (JIWG) to facilitate the development of a research roadmap for this purpose; and, an AFRRI scientist was appointed as a member to the JIWG. Several AFRRI scientists were also invited participants at the October 2004 annual meeting of the Council on Ionizing Radiation Measurements and Standards, which was held in Gaithersburg, Maryland. The meeting focused on biological dosimetry measurements and standards. In addition, AFRRI's biodosimetry research accomplishments were presented at the *October 2004 Blue Ribbon Panel Meeting, NIH Strategic Plan and Research Agenda for Medical Countermeasures Against Radiological and Nuclear Threats*, held in Bethesda, Maryland. In these and other national and international meetings (i.e., the *2004 Annual Meeting of the European Society of Radiation Research* held in Budapest, Hungary; and, the *International Conference on the Study of Ionizing Radiation Dosimetry, Thematic Network* held in Barcelona, Spain), AFRRI shared its findings with the research community interested in enhancing the national capability to respond to medical radiological emergencies.

AFRRI's Biodosimetry Assessment Tool (BAT) software program was developed to promote the rapid collection of data for early use after a radiation exposure incident; to provide diagnostic and therapeutic information needed to manage radiation casualties; and, to record related clinical information (i.e., extent of contamination, wounds, infection) necessary for the proper medical care of radiation casualties. ***In 2004, AFRRI launched the Radiation Biological Dosimetry Tools for Emergency Responders web page*** at <*www.afrri.usuhs.mil/www/outreach/biodostools.htm*>. Visitors can access tools that include BAT; the AFRRI Adult/Pediatric Field Medical Record, a convenient one-page form for gathering emergency medical information in the field; and, the AFRRI Biodosimetry Worksheet, a four-page data entry worksheet that provides a place for recording facts about a radiation exposure case, including the source and type of radiation, the extent of exposure, and the nature of the resulting injuries. These documents are applicable to both adult and pediatric cases. Another program currently being developed at AFRRI is the ***First-Responder Radiological Assessment Triage (FRAT)*** software program, a complementary product to BAT and intended for use on hand-held personal digital assistant devices. FRAT will provide data

collection templates for analyzing clinical signs and symptoms, lymphocyte counts, physical dosimetry, radioactivity, and location-relevant dose estimates. Like the BAT, FRAT provides a triage dose assessment by comparing data collected in templates with radiation dose responses obtained from the literature. The use of this application to monitor an individual's diagnostic information could minimize psychological injury by correcting the way radiation casualties and the concerned public view exposure, dose, and risk of future disease;

The Heavy Metals Research Team. In partial response to concerns over Gulf War Illness, the Heavy Metals Research Team (originally, the Depleted Uranium Team) was established to study the biological consequences and potential health risks from chronic exposure to tissue-embedded depleted uranium (DU). The team's research findings have resulted in a change to medical doctrine, which calls for a more aggressive removal of DU shrapnel fragments. The AFRRI team members work closely with the DoD Department of Deployment Health Support as subject matter experts and consultants on DU and other heavy metals issues and collaborate with the Department of Veterans Affairs in its program to medically follow Gulf War veterans wounded by DU shrapnel. Team members have been called upon on several occasions to give testimony before Congress in this regard. The development and refinement of an inductively coupled mass spectrometry procedure, which can differentiate DU from natural uranium in biological samples, has become an integral part of this collaborative study and has contributed to AFRRI's being recognized as a center of excellence in DU studies. AFRRI's consultation and expertise greatly helped to defuse the 2001 crisis within the NATO alliance, stemming from claims by some allied forces that DU exposures during operations in the Balkans were the cause of serious personal illness. The development of a simple chemical assay for DU, which can be configured into a compact, rapid field test to aid triage and medical management decisions, is another achievement of the Heavy Metals Research Team. ***The Rapid Field-Based DU Detection Assay has been patented and is expected to transition within the next two to three years.*** The AFRRI team is also investigating the health effects of exposure to metal alloys proposed as surrogates for DU in armor-penetrating munitions. The surprising toxicity exhibited by one of the leading candidate alloys, a metal also used in the arsenals of certain nations, resulted in an advisory to United States military surgeons, before Operation Iraqi Freedom, to monitor for wounds resulting from shrapnel of that class of alloys. The AFRRI team has served as an advisor to the DoD Office of Health Affairs and the United States Army Medical Research and Materiel Command (USAMRMC) in these areas and is continuing its research in the areas of DU and DU-replacement alloys, supported by several USAMRMC grants. Since 1998, the team has published 31 articles in peer-reviewed journals, including seven during the period from 2003 to the present. These efforts and their validation in peer-reviewed publications have made the AFRRI Heavy Metals Research Team a focal point of recognized expertise frequently consulted by DoD and other United States and NATO government policy makers; and,

The Radiation Infection Treatment Team. Following the direction of the Director, BioSystems, Office of the Director, Defense Research and Engineering, AFRRI's Nuclear, Biological and Chemical Interactions and Countermeasures Team's scope of effort was considerably narrowed and shifted to a new area of concentration. The newly named Radiation Infection Treatment Team now focuses on the problem of understanding and developing medical countermeasures against the radiation-induced translocation of intestinal bacteria into the bloodstream, and other naturally occurring infectious sequelae that accompany higher doses of ionizing radiation. Its staff of highly trained and experienced microbiologists extends the work of the Radiation Casualty Management Team by concentrating on studies to develop preventive and treatment measures for polymicrobial sepsis. Ionizing radiation damages the cellular components of the immune system and the epithelial linings of the intestinal track and respiratory system. The damage to epithelial tissues creates portals of entry into the circulatory system for microbial agents. This, combined

with an impaired immune system leads to polymicrobial sepsis, which is the leading cause of death due to radiation injury. The team's initial objectives are to establish animal models that appropriately represent radiation-induced microbial sepsis and then to begin examining several proposed prophylactic and treatment measures that include the use of new-generation antimicrobial agents, biological response modifiers and probiotic agents.

During 2003, initial studies were completed in a small animal model demonstrating the efficacy of new-generation antibiotics for treating opportunistic infections following sublethal irradiation. The team initiated preparations for more definitive studies in a large animal model, with a long-term goal of obtaining FDA approval for re-labeling currently licensed antibiotics for use in treating radiation-induced sepsis. During 2004 and 2005, to the time of this writing, the Radiation Infection Treatment Team provided six publications for DoD and NATO, two abstracts for national and international colleagues, three nationally attended presentations, one training session for the American Society for Microbiology, and support to two extramural collaborative efforts (further detail is provided at the AFRRI section of Appendix C).

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RESPONSE TO THE SPECIAL REQUIREMENTS OF MEDICAL READINESS

AFRRI Projects Address Requirements of Military Operations and Homeland Security. AFRRI's portfolio of current and planned projects adequately addresses needs related to military operations and homeland security through an on-going review process by four entities.

> **...At the same time, the Institute** (AFRRI) **supported national antiterrorism programs and military exercises and operations. For Operation ENDURING FREEDOM in Kuwait, the Institute developed emergency response plans; and for Operation IRAQI FREEDOM, it provided guidance on treatment of personnel with embedded depleted uranium or tungsten alloy fragments and conducted studies on the use of ionizing radiation to decontaminate human remains. By their exemplary performance of duty, the members of the Armed Forces Radiobiology Research Institute have brought great credit upon themselves and to the Department of Defense.**
>
> - **Donald Rumsfeld, Secretary of Defense,** taken from the Citation to Accompany the Joint Meritorious Unit Award, signed on February 17, 2004.

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Four Entities Guide Research Thrusts or Provide Oversight and Review. Four entities provide guidance on program objectives and product development based on specific military requirements and oversight and review of the AFRRI research programs.

The AFRRI Board of Governors. At least once each year, the AFRRI Board of Governors meets to assist in the oversight of AFRRI's radiobiology research, to advise and review program plans and accomplishments, and to ensure compliance with Service Requirements. The AFRRI Board of Governors consists of the Assistant Secretary of Defense for Health Affairs; the Surgeons General of the Army, Navy, and Air Force; the Deputy Chiefs of Staff for Operations of the Army, Navy, and Air Force, or their designated representatives; and, the President of USU.

In July of 2004, the AFRRI program was peer reviewed at the Board of Governors Meeting. The two scientific reviewers stated: **The overall program is well-rounded and responsive to the AFRRI mission of assessment, protection, and treatment of radiation injury. Indeed, we acknowledge that AFRRI is a unique resource with a clearly-stated mission not being addressed elsewhere in the country. This mission is tightly linked with U.S. scientific policy decisions, primarily in the area of potential radiological terrorist attacks. The AFRRI Director and Scientific Director are doing a first-class job in keeping the scientific mission focused within the constraints of limited resources and professional staff. They are also to be commended for their many external activities related to federal guidance on the implementation of scientific resources and improvement in the scientific knowledge base in the radiation sciences.**

During an earlier meeting held on April 24, 2003, the AFRRI Board of Governors addressed that the core funding of AFRRI is inadequate for research and facility maintenance and adversely impacts on product transition. The Board indicated that beginning in Fiscal Year 2006, it expected that AFRRI would have an opportunity to participate in the DoD budgeting process through an appropriate acquisition authority. A Senior Review Group, as designated by the Office of the Secretary of Defense, will be examining the necessary process. Other issues referenced the absence of formalized funding for the Medical Effects of Ionizing Radiation (MEIR) Course and the lack of identification of the training requirements from the Services. The Board recommended that Health Affairs coordinate a meeting with the Defense Medical Readiness Training Institute (DMRTI) and AFRRI/USU to address the fielding of medical nuclear/radiological distance learning. The Army, Navy and Air Force would also need to establish policy on medical nuclear/radiological training requirements. In addition, the Board noted that Operational Requirement Documents for medical nuclear/radiological defense materiel do not exist to support the needs of the Services. It was decided to identify Army, Navy, and Marine CBT Development Activity and Joint Requirements Office POCs to develop a Mission Needs Statement and Joint Service Operational Requirement Documents for medical nuclear/radiological products. As of April 2005, the recommended meeting with Health Affairs, DMRTI, and USU/AFRRI has not as yet taken place; the Director of AFRRI will address the above described required actions at the next meeting of the AFRRI Board of Governors.

The United States Army Nuclear Chemical Agency. Every two years, the United States Army Nuclear Chemical Agency (USANCA), with the assistance of AFRRI subject matter experts, publishes its Specific Military Requirements (SMRs) for Nuclear and Chemical Defense. Three of USANCA's top 20 requirements fall within the mandates of AFRRI's Medical Radiological Defense Research Program and were influential in the establishment of AFRRI's current Defense Technology Objectives.

The last SMRs workshop was held in April of 2003, to prepare for the Fiscal Year 2005/2006 Specific Military Requirements. Six medical radiological defense items were ranked in the top 20 SMRs, one of which was number four (on radioprotectants). The SMR workshops are generally scheduled in mid-April; the call for the Fiscal Year 2005 workshop has not as yet been issued.

The Medical Force Protection Integrated Concept Team. AFRRI is a member of the Medical Force Protection (MFP) Integrated Concept Team (ICT). This team has the responsibility to identify futuristic medical requirements for addressing MFP for the total force under all combat and non-combat conditions; this includes protection of the service member on the battlefield, at the site of injury, through his/her time spent on active duty, and following the service member's departure into civilian life and retirement. It is well within the scope of the MFP/ICT to recommend that joint requirement documents be established for medical radiological defense products such as pretreatment and treatment pharmaceuticals and fieldable and rapid assessment biodosimetry techniques.

The Office of the Director, Defense Research and Engineering. The Office of the Director, Defense Research and Engineering (DDR&E) conducts a technology area review and assessment (TARA) every two years. The TARA process includes, but is not limited to, a comprehensive review of AFRRI's DTO's (Defense Technology Objectives) relative to each DTO's stated milestones and metrics and whether the DTO objectives adequately focus on requirements. A program overview sponsored by DDR&E was held on June 25-27, 2001. AFRRI presented each protocol related to four main program areas: Biological Dosimetry;

Depleted Uranium; Radiation Casualty Management; and, NBC Combined Effects and Countermeasures. The main finding was the requirement to define a process for transitioning products from the Science and Technology P6.3 Program to the Advanced Development Programs, P6.4 and P6.5.

The last TARA was held in March of 2003. To date, there is nothing definitive for AFRRI on P6.4/P6.5 funding for advanced development (acquisition) of medical radiological defense products; such funding is tied to the requirements process. Without a military requirement *(the United States Army Nuclear Chemical Agency (USANCA) Specific Military Requirements (SMRs) for Nuclear and Chemical Defense are not included as military requirements)*, a formal acquisition program funded with P6.4/P6.5 appropriations cannot be initiated. The Fiscal Year 2005 TARAs were not held; indications reflect that DDR&E intends to reevaluate and possibly restructure the TARA process. The next TARA has not as yet been scheduled (TARAs are generally held in March and are scheduled in the Fall of the proceeding year). The newly established Joint Program Executive Office (JPEO), tasked to control the funding of acquisition programs, has indicated interest in several AFRRI products; one meeting between AFRRI and JPEO took place in the Fall of 2003, to review an initial draft of a Capability Development Document. Subsequently, the Joint Requirements Office (JRO) has ceased activity on the Capability Development Document (CDD) for radioprotectants because it was determined that, under the new requirements system, an Initial Capability Document (ICD) must first be developed. The JRO has also decided to combine all CBRN requirements included at the ICD stage into two separate areas: therapeutics and prophylactics. A therapeutic ICD for medical CBRN was developed early in 2004 and is currently in coordination for concurrence across the Service elements, the Joint Staff, and the Office of the Secretary of Defense. A prophylactic ICD was drafted early in 2005 and is under review prior to coordination. Medical radiological defense issues are covered in both of these ICDs.

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OPTIMIZATION OF FUTURE OPERATIONS

Facility Improvements.

Cobalt Refueling. The *June 2004 Refueling Operation* increased the Cobalt Irradiation Facility's amount of cobalt-60 from 100,000 curies to about 450,000. The new cobalt rods ensure that AFRRI can continue to perform a wide array of experiments safely and efficaciously for at least 10 years before the next refueling.

Animal Facility Accreditation. The Association for the Assessment and Accreditation of Animal Care (AAALAC) International conducted a comprehensive review of the AFRRI Animal Care and Use Program, to include policies, procedures, records, and facilities and granted restoration of full accreditation.

Animal Care Facility Improvements. A new state-of-the-art cage wash system was installed and the steam station was also upgraded to meet system requirements and to accommodate the future expansion of services by the Veterinary Sciences Department. Other improvements to the facility, which currently houses 6,000 animals, included a new non-potable hot water supply system that quadruples the original capacity, virtual air volume devices for climate control and remote monitoring, and variable frequency drives that improve the effectiveness and efficiency of the air handlers.

HVAC and Security Systems. Projects are currently underway to repair the heating, ventilation, and air conditioning (HVAC) systems throughout AFRRI. The first phase is to upgrade the controls that alert the technicians to HVAC problems and assist with their resolution. In addition, a contract has been set in place to replace the physical security system, during 2005.

NRC License. The Nuclear Regulatory Commission (NRC) has renewed AFRRI's radiation license of broad scope, which allows the use of byproduct material for the next 10 years.

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Resource Sharing Continues Between USU and AFRRI.

Continuation and Expansion of On-Going Cost-Avoidance Measures by USU and AFRRI. Both USU and AFRRI agree that on-going, cost-effective measures, initiated during 1992, will continue and be expanded, as appropriate. Some examples follow: 1) all contracts and maintenance agreements will be frequently reviewed for cost avoidance and savings; 2) the USU Security Division will continue to process security background investigations for the contracted employees assigned at AFRRI; 3) the USU Civilian Human Resources Directorate will continue to provide all personnel requirements for AFRRI in accordance with current agreements; 4) the USU Administrative Support Division will continue to provide support for AFRRI's visa/passport requirements; 5) the USU Contracting Directorate will continue to provide guidance and back-up support for the employee assigned with the AFRRI contracting/support requirements; 6) the

AFRRI and USU Directors of Laboratory Animal Medicine will continue to share equipment and use joint purchases for supplies; 7) the USU Learning Resources Center (Library) will continue to provide all related services for AFRRI in accordance with current agreements; 8) collaboration on occupational medicine training requirements will continue; 9) the USU Veterinary Pathology Division will continue its support for AFRRI's microbiology and electron microscopy requirements; the AFRRI Veterinarian Pathologist will continue to assist USU as required; 10) USU will continue to serve as the Internet Service Provider for AFRRI; the on-going sharing of Self-Help videos and distance learning expertise will continue; and, 11) the USU Military Personnel Office will continue to share its Equal Opportunity and mandatory training classes with the AFRRI military personnel.

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Necessary Steps Are Identified to Remedy Deficiencies in Resourcing.

Determination of Staffing/Funding Requirements. Generally, when an organization is integrated within another, there are anticipated savings in manpower and operating costs throughout the administrative and support areas. However, due to continuous and significant reductions in the AFRRI budget over the past years (beginning in 1992/3 when AFRRI's funding was reduced by over 40 percent), the manpower levels in the AFRRI administrative/support areas have been consistently reduced, at times below recommended manpower levels. At the same time, the USU administrative support staff has been maintained at the minimum level required to support the University's mission and to assure compliance with its controlling regulations. A joint recommendation by both USU and AFRRI has been documented in the Administration Plan of October 2000 for five additional administrative hires by AFRRI in the areas of Security, Facilities, and Research Administration. The inclusion of the funding for these additional five hires ($262,000) was included in the estimated cost of staffing AFRRI during FY2002 and beyond. During March of 2005, approval was received and the hiring of an electrician was completed by the AFFRI Facilities Division.

One-Time Property Renovation Costs. AFRRI's urgent requirements for real property maintenance and repair and/or renovation projects were not addressed until late in 2003 due to AFRRI's consistent budget reductions, which began in 1993. The Facilities Divisions of USU and AFRRI coordinated to provide an estimated total cost for addressing these concerns. The estimated one-time cost for renovations and/or repairs totaled four million dollars. These real property maintenance and renovation projects were urgently required for the continued use of AFRRI's 173,000 square foot complex; the costs were discussed with the Office of the Director of Defense Research and Engineering. The projects included: the building of firewalls; the renovation of the heating, ventilation, and air conditioning (HVAC) systems; major laboratory upgrades; and, the renovation of elevators. All of the projects were five to ten years beyond the recommended timeframes for implementation.

Funding for the above mentioned renovation projects was scheduled for receipt by AFRRI over two years, during Fiscal Years 2003 and 2004. The Fiscal Year 2003 installment of two million dollars was not received until late 2003 because of reprogramming delays for funding AFRRI's entire program, as discussed earlier in the *Governance* section at the beginning of the AFRRI portion of the USU Journal. Initial funding allotments have been concentrated on major upgrades to the Veterinary Facility cage wash system and initial repairs to the HVAC and security systems. Plans are being finalized for the complete renovation of the electrical, heating, ventilation, air conditioning, and steam supply systems. The allocation/obligation

of the remainder of the funding received during 2003 and 2004 is scheduled for completion during June of 2005.

Recently Completed Projects.

Upon receipt of funding from DDR&E, the AFRRI Facilities Division replaced the aging cage wash system in the Veterinary Science Department (VSD) with a state-of-the-art system manufactured by Lynx Products Group; the system is specifically designed for AFRRI's unique cage sizes and equipment. The system can be remotely monitored and changes in protocols can be made in minutes to facilitate a particular piece of equipment. In addition, the manufacturer is linked to the system via a dedicated telephone line to a computer in the animal husbandry office, which provides immediate communication with various components of the system and permits immediate troubleshooting and assistance.

Associated with the installation of the new cage wash system, the steam station has been provided with all new valves, controls, monitoring devices, and an increase in the piping size from two inches to either three or four inches, depending upon the device. This increased capacity meets the requirements of the new cage wash system and provides flexibility for projected increases by VSD. In addition, the non-potable hot water supply system has been upgraded with an increase in capacity four times that of the old system; this upgrade meets the requirements of the new cage wash system and also provides flexibility for increased capacity.

On the first and third floors of all VSD animal rooms, the AFRRI Facilities Division has installed new virtual air volume (VAV) devices to properly control air temperature, humidity and negative pressure, which meet both DoD and AAALAC requirements. The VAV devices, located on the wall outside of each animal room, efficiently provide the caretaker with vital LCD digital information. The system also provides remote computer access for the Facility Manager and the HVAC Technician, which allows monitoring of the entire system and permits remote adjustment, when required. Adjustments to the system can also be made, by room, via a compatible laptop computer. Future plans include that the on-call VSD animal caretaker will be provided with a warning device for identifying system malfunctions throughout the animal rooms. The second floor of the VSD is scheduled to be retrofitted during 2005.

The Facilities Division has also installed variable frequency drives (VFDs) to the air handlers in Penthouse 47 of the VSD. These air handlers supply and exhaust air for the animal colony. They work in conjunction with the VAV devices as vital components for maintaining temperature, humidity and air volume throughout the VSD; in addition, the VFDs provide substantial energy efficiency and substantially reduce electrical costs. Prior to the installation of the VFDs, the air handler constantly ran at top speed, which caused significant wear on the equipment and components and required maximum utilization of electricity. The VFDs now allow the system to cost-effectively run on a demand basis.

The replacement of the HVAC controls in Penthouse A is currently underway. The new system will provide remote computer control for the Facilities Manager and the HVAC Technician; following an alert, it will identify the cause and location of a problem. In some cases, adjustments or corrections will be remotely made. This represents the first phase of the renovation of the entire HVAC system throughout the AFRRI complex.

A contract to replace the existing security system has been completed for $460,000. Installation was initiated in March of 2005 and should be completed by September 30, 2005. While AFRRI has

completed and scheduled many other projects, the above-described accomplishments have taken place over the past 18 months. AFRRI will continue the renovation of its infrastructure as funding permits.

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AFRRI's Internal Response to Budget Deficiencies.

AFRRI's Internal Program Management. Due to consistent budgetary reductions, in order to maintain a vibrant and productive program, AFRRI has re-engineered its strategic approach to program management and resource allocation. A system of planning, programming, budgeting, review and analysis rounds out a streamlined process that focuses on programmatic relevance, scientific merit, and monitored productivity. This system is structured so that professional and technical staff at all levels within the Institute become stakeholders in the program and are more fully committed to meeting the Institute's goals and objectives. The implementation of this comprehensive, constantly evolving management strategy has had a profound impact on productivity and the quality enhancement of program output.

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Product Transition.

Products Identified for Transition. AFRRI has identified numerous candidate products for transition within the next ten years. With funding projections in hand, AFRRI has identified the unfunded requirements. Products identified for transition include: 1) true radiation radioprotectant drugs to help prevent radiation injuries in service members and emergency response personnel who may be called upon to operate in nuclear or radiological environments; 2) treatment drugs for radiation injuries that enhance immune system function and accelerate recovery of the blood-forming system and drugs for treating radiation-induced infections; 3) treatment strategies to replace the trauma of bone marrow transplants and the complications of transplant rejection; and, 4) procedures for rapid biological assessment of radiation dose are being developed, which will contribute to the delivery of more timely and effective triage and the medical management of the radiation-injured; this will help to distinguish between the truly physically injured and the *worried well*. In the event of a serious incident, radiophobia and psychologically stressed populations would be significant and must be quickly dealt with in order to reassure the general public and to effectively manage the response. And, as discussed earlier, AFRRI will continue to coordinate with the Joint Program Executive Office (JPEO) to establish joint military requirements against which P6.4/P6.5 funding for advanced development can be justified.

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Appendix A

Public Law 92-426
92nd Congress H. R. 2
September 21, 1972

An Act

To establish a Uniformed Services University of the Health Sciences and to provide scholarships to selected persons for education in medicine, dentistry, and other health professions, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That this Act may be cited as the "Uniformed Services Health Professions Revitalization Act of 1972".

Uniformed Services Health Professions Revitalization Act of 1972.
86 Stat. 1064.
10 USC 2101.

SEC. 2. (a) Title 10, United States Code, is amended by adding the following new chapters after chapter 103:

Chapter 104. — UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

Sec.
2112. Establishment.
2113. Board of Regents.
2114. Students: selection; status; obligation.
2115. Graduates: limitation on number permitted to perform civilian Federal service.
2116. Reports to Congress.
2117. Authorization for appropriations.

2112. Establishment

(a) There is hereby authorized to be established within 25 miles of the District of Columbia a Uniformed Services University of the Health Sciences (hereinafter referred to as the "University"), at a site or sites to be selected by the Secretary of Defense, with authority to grant appropriate advanced degrees. It shall be so organized as to graduate not less than 100 medical students annually, with the first class graduating not later than 10 years after the date of the enactment of this chapter.

(b) Except as provided in subsection (a), the numbers of persons to be graduated from the University shall be prescribed by the Secretary of Defense. In so prescribing the number of persons to be graduated from the University, the Secretary of Defense shall, upon recommendation of the Board of Regents, institute actions necessary to ensure the maximum number of first-year enrollments in the University consistent with the academic capacity of the University and the needs of the uniformed services for medical personnel.

(c) The development of the University may be by such phases as the Secretary of Defense may prescribe, subject to the requirements of subsection (a).

Appendix A

2113. Board of Regents

(a) The business of the University shall be conducted by a Board of Regents (hereinafter referred to as the "Board") with funds appropriated for and provided by the Department of Defense. The Board shall consist of—

(1) nine persons outstanding in the fields of health and health education who shall be appointed from civilian life by the President, by and with the advice and consent of the Senate;

(2) the Secretary of Defense, or his designee, who shall be an ex officio member;

(3) the surgeons general of the uniformed services, who shall be ex officio members; and

(4) the person referred to in subsection (d).

(b) The term of office of each member of the Board (other than ex officio members) shall be six years except that—

(1) any member appointed to fill a vacancy occuring before the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term;

(2) the terms of office of the members first taking office shall expire, as designated by the President at the time of the appointment, three at the end of two years, three at the end of four years, and three at the end of six years; and

(3) any member whose term of office has expired shall continue to serve until his successor is appointed.

(c) One of the members of the Board (other than an ex officio member) shall be designated by the President as Chairman. He shall be the presiding officer of the Board.

(d) The Board shall appoint a Dean of the University (hereinafter referred to as the "Dean") who shall also serve as a nonvoting ex officio member of the Boad.

(e) Members of the Board (other than ex officio members) while attending conferences or meetings or while otherwise performing their duties as members shall be entitled to receive compensation at a rate to be fixed by the Secretary of Defense, but not exceeding $100 per diem and shall also be entitled to receive an allowance for necessary travel expenses while so serving away from their place of residence.

(f) The Board, after considering the recommendations of the Dean, shall obtain the services of such military and civilian professors, instructors, and administrative and other employees as may be necessary to operate the University. Civilian members of the faculty and staff shall be employed under salary schedules and granted retirement and other related benefits prescribed by the Secretary of Defense so as to place the employees of the University on a comparable basis with the employees of fully accredited schools of the health professions within the vicinity of the District of Columbia. The

Board may confer academic titles, as appropriate, upon military and civilian members of the faculty. The military members of the faculty shall include a professor of military, naval, or air science as the Board may determine.

(g) The Board is authorized to negotiate agreements with agencies of the Federal Government to utilize on a reimbursable basis appropriate existing Federal medical resources located in or near the District of Columbia. Under such agreements the facilities concerned will retain their identities and basic missions. The Board is also authorized to negotiate affiliation agreements with an accredited university or universities in or near the District of Columbia. Such agreements may include provisions for payments for educational services provided students participating in Department of Defense educational programs. The Board may also, subject to the approval of the Secretary of Defense, enter into an agreement under which the University would become part of a national university of health sciences should such an institution be established in the vicinity of the District of Columbia.

(h) The Board may establish postdoctoral, postgraduate, and technological institutes.

(i) The Board shall also establish programs in continuing medical education for military members of the health professions to the end that high standards of health care may be maintained within the military medical services.

2114. Students: selection: status: obligation.

(a) students at the University shall be selected under procedures prescribed by the Secretary of Defense. In so prescribing, the Secretary shall consider the recommendations of the Board. However, selection procedures prescribed by the Secretary of Defense shall emphasize the basic requirement that students demonstrate sincere motivation and dedication to a career in the uniformed services (as defined in section 1072(1) of this title).

(b) Students shall be commissioned officers of a uniformed service as determined under regulations prescribed by the Secretary of Defense after consulting with the Secretary of Health, Education, and Welfare. Notwithstanding any other provision of law, they shall serve on active duty in pay grade O-1 with full pay and allowances of that grade, but shall not be counted against any prescribed military strengths. Upon graduation they shall be appointed in a regular component, if qualified, unless they are covered by section 2115 of this title. Students who graduate shall be required, except as provided in section 2115 of this title, to serve thereafter on active duty under such regulations as the Secretary of Defense or the Secretary of Health, Education, and Welfare, as appropriate, may prescribe for not less than seven years, unless sooner released. The service credit exclusions specified in section 2126 of this title shall apply to students covered by this section.

(c) A period of time spent in military intern or residency training shall not be creditable in satisfying active duty obligation imposed by this section.

(d) A member of the program who, under regulations prescribed by the Secretary of Defense, is dropped from the program for deficiency in conduct or studies, or for other reasons, may be required to perform active duty in an appropriate military capacity in accordance with the active duty obligation imposed by this section. In no case shall any such member be required to serve on active

duty for any period in excess of a period equal to the period he participated in the program, except that in no case may any such member be required to serve on active duty less than one year.

2115. Graduates: limitation on number permitted to perform civilian Federal service

The Secretary of Defense may allow not more than 20 percent of the graduates of each class at the University to perform civilian Federal service for not less than seven years following the completion of their professional education in lieu of active duty in a uniformed service if the needs of the uniformed services do not require that such graduates perform active duty in a uniformed service and as long as the Secretary of Defense does not recall such persons to active duty in the uniformed services. Such persons who execute an agreement in writing to perform such civilian Federal service may be released from active duty following the completion of their professional education. The location and type of their duty shall be determined by the Secretary of Defense after consultation with the heads of Federal agencies concerned.

2116. Reports to Congress

The Secretary of Defense shall report periodically to the Committees on Armed Services of the Senate and House of Representatives on the feasibility of establishing education institutions similar or identical to the University at any other locations he deems appropriate. The last such report shall be submitted by June 30, 1976.

2117. Authorization for appropriations

There is hereby authorized to be appropriated to the Department of Defense for the planning, construction, development, improvement, operation, and maintenance of the University, and to otherwise accomplish the purposes of this title, for the fiscal year beginning July 1, 1972, the sum of $15,000,000 and for each fiscal year thereafter such sum as may be authorized in the annual military construction authorization Act for such year.

* * * * * * * * * * * * * * *

2128. Members of the program: service credit

Service performed while a member of the program shall not be counted—

(1) in determining eligibility for retirement other than by reason of a physical disability incurred while on active duty as a member of the program; or

(2) in computing years of service creditable under section 205, other than subsection (a)(7) and (8), of title 37.

* * * * * * * * * * * * * * *

Added Pub. L. 92-426, 2(a), Sept. 21, 1972, 86 Stat. 713 et seq.; Pub. L. 95-589, Nov. 4, 1978, 92 Stat. 2512; Pub. L. 96-107, Nov. 9, 1979, 93 Stat. 811 et seq. (Title 10, United States Code, 2112-2117, 2128)

-CITE-
10 USC CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES 01/06/03

-EXPCITE-
TITLE 10 - ARMED FORCES
Subtitle A - General Military Law
PART III - TRAINING AND EDUCATION
CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES
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-HEAD-
CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-MISC1-
Sec.
2112. Establishment.
2112a. Continued operation of University.
2113. Administration of University.
2114. Students: selection; status; obligation.
2115. Graduates: limitation on number permitted to perform civilian Federal service.
2116. Military nursing research.
(2117. Repealed.)

AMENDMENTS

1996 - Pub. L. 104-201, div. A, title IX, Sec. 907(a)(2), Sept. 23, 1996, 110 Stat. 2620, added item 2112a.

Pub. L. 104-106, div. A, title VII, Sec. 741(b), title X, Sec. 1072(c)(2), Feb. 10, 1996, 110 Stat. 385, 446, substituted ''Administration of University'' for ''Board of Regents'' in item 2113 and added item 2116.

1990 - Pub. L. 101-510, div. A, title XIV, Sec. 1484(b)(2)(B), Nov. 5, 1990, 104 Stat. 1716, struck out item 2117 ''Authorization for appropriations''.

1983 - Pub. L. 98-94, title XII, Sec. 1268(12)(B), Sept. 24, 1983, 97 Stat. 706, struck out item 2116 ''Reports to Congress''.

1979 - Pub. L. 96-107, title VIII, Sec. 803(c)(3), Nov. 9, 1979, 93 Stat. 812, substituted ''permitted'' for ''electing'' and ''service'' for ''duty'' in item 2115.

-CITE-
10 USC Sec. 2112 01/06/03

-EXPCITE-
TITLE 10 - ARMED FORCES
Subtitle A - General Military Law
PART III - TRAINING AND EDUCATION
CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-HEAD-
Sec. 2112. Establishment

-STATUTE-
(a) There is hereby authorized to be established within 25 miles of the District of Columbia a Uniformed Services University of the Health Sciences (hereinafter in this chapter referred to as the ''University''), at a site or sites to be selected by the Secretary

of Defense, with authority to grant appropriate advanced degrees. It shall be so organized as to graduate not less than 100 medical students annually.

(b) Except as provided in subsection (a), the numbers of persons to be graduated from the University shall be prescribed by the Secretary of Defense. In so prescribing the number of persons to be graduated from the University, the Secretary of Defense shall institute actions necessary to ensure the maximum number of first-year enrollments in the University consistent with the academic capacity of the University and the needs of the uniformed services for medical personnel.

(c) The development of the University may be by such phases as the Secretary of Defense may prescribe subject to the requirements of subsection (a).

-SOURCE-

(Added Pub. L. 92-426, Sec. 2(a), Sept. 21, 1972, 86 Stat. 713; amended Pub. L. 96-107, title VIII, Sec. 803(a), Nov. 9, 1979, 93 Stat. 811; Pub. L. 96-513, title V, Sec. 511(63), (64), Dec. 12, 1980, 94 Stat. 2925, 2926; Pub. L. 104-106, div. A, title X, Sec. 1072(b)(1), Feb. 10, 1996, 110 Stat. 446; Pub. L. 107-107, div. A, title X, Sec. 1048(e)(8), Dec. 28, 2001, 115 Stat. 1228.)

-MISC1-

AMENDMENTS

2001 - Subsec. (a). Pub. L. 107-107 struck out '', with the first class graduating not later than September 21, 1982'' before period at end.

1996 - Subsec. (b). Pub. L. 104-106 struck out '', upon recommendation of the Board of Regents,'' before ''institute actions necessary''.

1980 - Subsec. (a). Pub. L. 96-513 inserted ''in this chapter'' after ''hereinafter'', and substituted ''September 21, 1982'' for ''10 years after the date of the enactment of this chapter''.

1979 - Subsec. (b). Pub. L. 96-107 inserted provisions respecting the maximum number of first-year enrollments in the University.

EFFECTIVE DATE OF 1980 AMENDMENT

Amendment by Pub. L. 96-513 effective Dec. 12, 1980, see section 701(b)(3) of Pub. L. 96-513, set out as a note under section 101 of this title.

SHORT TITLE

Section 1 of Pub. L. 92-426 provided: ''That this Act (enacting this chapter and chapter 105 of this title) may be cited as the 'Uniformed Services Health Professions Revitalization Act of 1972'.''

-TRANS-

TRANSFER OF FUNCTIONS

For transfer of authority of Board of Regents of Uniformed Services University of the Health Sciences to Secretary of Defense, see section 8091 of Pub. L. 101-511, set out as a note under section 2113 of this title.

-MISC5-

CONTINUATION OF UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

Section 1071 of Pub. L. 104-106, as amended by Pub. L. 104-201,

div. A, title IX, Sec. 907(b)(2), Sept. 23, 1996, 110 Stat. 2620, provided that:

''(a) Policy. - Congress reaffirms -

''(1) the prohibition set forth in subsection (a) of section 922 of the National Defense Authorization Act for Fiscal Year 1995 (Public Law 103-337; 108 Stat. 2829; 10 U.S.C. 2112 note) regarding closure of the Uniformed Services University of the Health Sciences; and

''(2) the expression of the sense of Congress set forth in subsection (b) of such section regarding the budgetary commitment to continuation of the University.

''((b) Repealed. Pub. L. 104-201, div. A, title IX, Sec. 907(b)(2), Sept. 23, 1996, 110 Stat. 2620. See section 2112a(b) of this title.)

''(c) Budgetary Commitment to Continuation. - It is the sense of Congress that the Secretary of Defense should budget for the operation of the Uniformed Services University of the Health Sciences during fiscal year 1997 at a level at least equal to the level of operations conducted at the University during fiscal year 1995.''

Pub. L. 103-337, div. A, title IX, Sec. 922, Oct. 5, 1994, 108 Stat. 2829, as amended by Pub. L. 104-201, div. A, title IX, Sec. 907(b)(1), Sept. 23, 1996, 110 Stat. 2620, provided that:

((a) Repealed. Pub. L. 104-201, div. A, title IX, Sec. 907(b)(1), Sept. 23, 1996, 110 Stat. 2620. See section 2112a(a) of this title.)

''(b) Budgetary Commitment to Continuation. - It is the sense of Congress that the Secretary of Defense should budget for the ongoing operation of the Uniformed Services University of the Health Sciences as an institution of professional education that is vital to the education and training each year of significant numbers of personnel of the uniformed services for careers as uniformed services health care providers.

''(c) GAO Evaluation. - Not later than June 1, 1995, the Comptroller General of the United States shall submit to Congress a detailed report on the Uniformed Services University of the Health Sciences. The report shall include the following:

''(1) A comparison of the cost of obtaining physicians for the Armed Forces from the University with the cost of obtaining physicians from other sources.

''(2) An assessment of the retention rate needs of the Armed Forces for physicians in relation to the respective retention rates of physicians obtained from the University and physicians obtained from other sources and the factors that contribute to retention rates among military physicians obtained from all sources.

''(3) A review of the quality of the medical education provided at the University with the quality of medical education provided by other sources of military physicians.

''(4) A review of the overall issue of the special needs of military medicine and how those special needs are being met by physicians obtained from University and physicians obtained from other sources.

''(5) An assessment of the extent to which the University has responded to the 1990 report of the Inspector General of the Department of Defense, including recommendations as to resolution of any continuing issues relating to management and internal

fiscal controls of the University, including issues relating to the Henry M. Jackson Foundation for the Advancement of Military Medicine identified in the 1990 report.

''(6) Such other recommendations as the Comptroller General considers appropriate.''

F. EDWARD HEAE1BERT SCHOOL OF MEDICINE

Pub. L. 98-94, title XII, Sec. 1265, Sept. 24, 1983, 97 Stat. 704, provided that: ''The School of Medicine of the Uniformed Services University of the Health Sciences shall after the date of the enactment of this Act (Sept. 24, 1983) be known and designated as the 'F. Edward HeAE1bert School of Medicine'. Any reference to such school of medicine in any law, regulation, map, document, or other record of the United States shall after such date be deemed to be a reference to such school of medicine as the F. Edward HeAE1bert School of Medicine.''

-SECREF-

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in section 2173 of this title.

-CITE-

10 USC Sec. 2112a 01/06/03

-EXPCITE-

TITLE 10 - ARMED FORCES
Subtitle A - General Military Law
PART III - TRAINING AND EDUCATION
CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-HEAD-

Sec. 2112a. Continued operation of University

-STATUTE-

(a) Closure Prohibited. - The University may not be closed.

(b) Personnel Strength. - During the five-year period beginning on October 1, 1996, the personnel staffing levels for the University may not be reduced below the personnel staffing levels for the University as of October 1, 1993.

-SOURCE-

(Added Pub. L. 104-201, div. A, title IX, Sec. 907(a)(1), Sept. 23, 1996, 110 Stat. 2620.)

-MISC1-

PRIOR PROVISIONS

Provisions similar to those in subsec. (a) of this section were contained in Pub. L. 103-337, div. A, title IX, Sec. 922(a), Oct. 5, 1994, 108 Stat. 2829, which was set out as a note under section 2112 of this title prior to repeal by Pub. L. 104-201, Sec. 907(b)(1).

Provisions similar to those in subsec. (b) of this section were contained in Pub. L. 104-106, div. A, title X, Sec. 1071(b), Feb. 10, 1996, 110 Stat. 445, which was set out as a note under section 2112 of this title prior to repeal by Pub. L. 104-201, Sec. 907(b)(2).

-CITE-

-EXPCITE-
TITLE 10 - ARMED FORCES
Subtitle A - General Military Law
PART III - TRAINING AND EDUCATION
CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-HEAD-
Sec. 2113. Administration of University

-STATUTE-
(a) The business of the University shall be conducted by the Secretary of Defense with funds appropriated for and provided by the Department of Defense. To assist the Secretary in an advisory capacity, there is a Board of Regents for the University. The Board shall consist of -

(1) nine persons outstanding in the fields of health and health education who shall be appointed from civilian life by the President, by and with the advice and consent of the Senate;

(2) the Secretary of Defense, or his designee, who shall be an ex officio member;

(3) the surgeons general of the uniformed services, who shall be ex officio members; and

(4) the person referred to in subsection (d).

(b) The term of office of each member of the Board (other than ex officio members) shall be six years except that -

(1) any member appointed to fill a vacancy occurring before the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term;

(2) the terms of office of the members first taking office shall expire, as designated by the President at the time of the appointment, three at the end of two years, three at the end of four years, and three at the end of six years; and

(3) any member whose term of office has expired shall continue to serve until his successor is appointed.

(c) One of the members of the Board (other than an ex officio member) shall be designated by the President as Chairman. He shall be the presiding officer of the Board.

(d) The Secretary shall appoint a Dean of the University (hereinafter in this chapter referred to as the ''Dean'') who shall also serve as a nonvoting ex officio member of the Board.

(e) Members of the Board (other than ex officio members) while attending conferences or meetings or while otherwise performing their duties as members shall be entitled to receive compensation at a rate to be fixed by the Secretary, but not exceeding $100 per diem and shall also be entitled to receive an allowance for necessary travel expenses while so serving away from their place of residence.

(f)(1) The Secretary, after considering the recommendations of the Dean, shall obtain the services of such military and civilian professors, instructors, and administrative and other employees as may be necessary to operate the University. Civilian members of the faculty and staff shall be employed under salary schedules and granted retirement and other related benefits prescribed by the Secretary so as to place the employees of the University on a comparable basis with the employees of fully accredited schools of

the health professions within the vicinity of the District of Columbia.

(2) The Secretary may confer academic titles, as appropriate, upon military and civilian members of the faculty.

(3) The military members of the faculty shall include a professor of military, naval, or air science as the Secretary may determine.

(4) The limitations in section 5373 of title 5 do not apply to the authority of the Secretary under paragraph (1) to prescribe salary schedules and other related benefits.

(g) The Secretary may negotiate agreements with agencies of the Federal Government to utilize on a reimbursable basis appropriate existing Federal medical resources located in or near the District of Columbia. Under such agreements the facilities concerned will retain their identities and basic missions. The Secretary may negotiate affiliation agreements with an accredited university or universities in or near the District of Columbia. Such agreements may include provisions for payments for educational services provided students participating in Department of Defense educational programs. The Secretary may enter into an agreement under which the University would become part of a national university of health sciences should such an institution be established in the vicinity of the District of Columbia.

(h) The Secretary of Defense may establish the following educational programs at the University:

(1) Postdoctoral, postgraduate, and technological institutes.

(2) A graduate school of nursing.

(3) Other schools or programs that the Secretary determines necessary in order to operate the University in a cost-effective manner.

(i) The Secretary shall also establish programs in continuing medical education for military members of the health professions to the end that high standards of health care may be maintained within the military medical services.

(j)(1) The Secretary also is authorized -

(A) to enter into contracts with, accept grants from, and make grants to the Henry M. Jackson Foundation for the Advancement of Military Medicine established under section 178 of this title, or any other nonprofit entity, for the purpose of carrying out cooperative enterprises in medical research, medical consultation, and medical education;

(B) to make available to the Henry M. Jackson Foundation for the Advancement of Military Medicine, on such terms and conditions as the Secretary determines appropriate, such space, facilities, equipment, and support services within the University as the Secretary considers necessary to accomplish cooperative enterprises undertaken by such Foundation and the University;

(C) to enter into contracts with the Henry M. Jackson Foundation for the Advancement of Military Medicine under which the Secretary may furnish the services of such professional, technical, or clerical personnel as may be necessary to fulfill cooperative enterprises undertaken by such foundation and the University;

(D) to accept, hold, administer, invest, and spend any gift, devise, or bequest of personal property made to the University, including any gift, devise, or bequest for the support of an academic chair, teaching, research, or demonstration project;

(E) to enter into agreements with the Henry M. Jackson

Foundation for the Advancement of Military Medicine, or with any other nonprofit entity, under which scientists or other personnel of the Foundation or other entity may be utilized by the University for the purpose of enhancing the activities of the University in education, research, and technological applications of knowledge; and

(F) to accept the voluntary services of guest scholars and other persons.

(2) The Secretary may not enter into any contract with the Henry M. Jackson Foundation for the Advancement of Military Medicine, or with any other entity, if the contract would obligate the University to make outlays in advance of the enactment of budget authority for such outlays.

(3) Scientists or other medical personnel utilized by the University under an agreement described in clause (E) of paragraph (1) may be appointed to any position within the University and may be permitted to perform such duties within the University as the Secretary may approve.

(4) A person who provides voluntary services under the authority of clause (F) of paragraph (1) shall be considered to be an employee of the Federal Government for the purposes of chapter 81 of title 5, relating to compensation for work-related injuries, and to be an employee of the Federal Government for the purposes of chapter 171 of title 28, relating to tort claims. Such a person who is not otherwise employed by the Federal Government shall not be considered to be a Federal employee for any other purpose by reason of the provision of such services.

-SOURCE-

(Added Pub. L. 92-426, Sec. 2(a), Sept. 21, 1972, 86 Stat. 714; amended Pub. L. 95-589, Nov. 4, 1978, 92 Stat. 2512; Pub. L. 96-513, title V, Sec. 511(64), Dec. 12, 1980, 94 Stat. 2926; Pub. L. 98-36, Sec. 3, May 27, 1983, 97 Stat. 201; Pub. L. 98-132, Sec. 2(b), Oct. 17, 1983, 97 Stat. 849; Pub. L. 99-661, div. A, title V, Sec. 505, Nov. 14, 1986, 100 Stat. 3864; Pub. L. 101-189, div. A, title VII, Sec. 726(a), (b)(1), Nov. 29, 1989, 103 Stat. 1480; Pub. L. 101-510, div. A, title XIII, Sec. 1322(a)(3), Nov. 5, 1990, 104 Stat. 1671; Pub. L. 104-106, div. A, title X, Sec. 1072(a), (b)(2), (c)(1), Feb. 10, 1996, 110 Stat. 446; Pub. L. 106-65, div. A, title XI, Sec. 1108, Oct. 5, 1999, 113 Stat. 778; Pub. L. 106-398, Sec. 1 ((div. A), title X, Sec. 1087(a)(12)), Oct. 30, 2000, 114 Stat. 1654, 1654A-291.)

-MISC1-

AMENDMENTS

2000 - Subsec. (f). Pub. L. 106-398 designated penultimate sentence and last sentence of par. (1) as pars. (2) and (3), respectively, redesignated former par. (3) as (4), and struck out former par. (2) which read as follows: ''The Secretary may exempt, at any time, a physician who is a member of the faculty from the restrictions in subsections (a), (b), and (c) of section 5532 of title 5, if the Secretary determines that such exemption is necessary to recruit or retain well-qualified physicians for the faculty of the University. An exemption granted under this paragraph shall terminate upon any break in employment with the University by a physician of three days or more. An exemption granted under this paragraph to a person shall apply to the retired

pay of such person beginning with the first month after the month in which the exemption is granted. Not more than five exemptions may be in effect under this paragraph at any time.''

1999 - Subsec. (f)(3). Pub. L. 106-65 added par. (3).

1996 - Pub. L. 104-106, Sec. 1072(c)(1), substituted ''Administration of University'' for ''Board of Regents'' as section catchline.

Subsec. (a). Pub. L. 104-106, Sec. 1072(b)(2)(A), substituted ''conducted by the Secretary of Defense'' for ''conducted by a Board of Regents (hereinafter in this chapter referred to as the 'Board')'' and inserted after first sentence ''To assist the Secretary in an advisory capacity, there is a Board of Regents for the University.''

Subsec. (d). Pub. L. 104-106, Sec. 1072(b)(2)(B), substituted ''The Secretary shall appoint'' for ''The Board shall appoint''.

Subsec. (e). Pub. L. 104-106, Sec. 1072(b)(2)(C), struck out ''of Defense'' after ''Secretary''.

Subsec. (f). Pub. L. 104-106, Sec. 1072(b)(2)(D), (F), in par. (1), substituted ''Secretary, after'' for ''Board, after'', ''Secretary so'' for ''Secretary of Defense so'', and ''Secretary may'' for ''Board may'' in two places, and in par. (2), substituted ''Secretary'' for ''Board'' in two places.

Subsec. (g). Pub. L. 104-106, Sec. 1072(b)(2)(E), substituted ''Secretary may negotiate agreements'' for ''Board is authorized to negotiate agreements'', ''Secretary may negotiate affiliation'' for ''Board is also authorized to negotiate affiliation'', and ''Secretary may enter'' for ''Board may also, subject to the approval of the Secretary of Defense, enter''.

Subsec. (h). Pub. L. 104-106, Sec. 1072(a), amended subsec. (h) generally. Prior to amendment, subsec. (h) read as follows: ''The Board may establish postdoctoral, postgraduate, and technological institutes.''

Subsecs. (i), (j). Pub. L. 104-106, Sec. 1072(b)(2)(F), substituted ''Secretary'' for ''Board'' wherever appearing.

1990 - Subsec. (j)(1). Pub. L. 101-510, Sec. 1322(a)(3)(A), struck out ''subject to paragraph (2),'' before ''to make'' in subpar. (B) and before ''to enter'' in subpars. (C) and (E).

Subsec. (j)(2) to (5). Pub. L. 101-510, Sec. 1322(a)(3)(B), (C), redesignated pars. (3) to (5) as (2) to (4), respectively, and struck out former par. (2) which read as follows: ''The authority of the Board under clauses (B), (C), and (E) of paragraph (1) may be exercised only if -

''(A) before the Board enters into any arrangement under which any space, facility, equipment, or support service is made available under clause (B) of such paragraph, before the Board enters into any contract under clause (C) of such paragraph, or before the Board enters into any agreement under clause (E) of such paragraph, it notifies the Committees on Armed Services of the Senate and the House of Representatives in writing of the proposed arrangement, contract, or agreement, as the case may be, the terms and conditions thereof, and, in the case of a proposed agreement under clause (E) of paragraph (1), any appointments proposed to be made under the authority of paragraph (4) in connection with the agreement, and

''(B) a period of fifteen days has elapsed following the date on which the notice is received by such committees.''

1989 - Subsec. (f)(2). Pub. L. 101-189, Sec. 726(a), substituted

''five exemptions'' for ''two exemptions''.

Subsec. (j)(1)(A). Pub. L. 101-189, Sec. 726(b)(1), inserted '', accept grants from, and make grants to'' after ''contracts with'' and substituted ''or any other'' for ''or with any other''.

1986 - Subsec. (f). Pub. L. 99-661 designated existing provisions as par. (1) and added par. (2).

1983 - Subsec. (j). Pub. L. 98-132 inserted ''Henry M. Jackson'' before ''Foundation for the Advancement of Military Medicine'' wherever appearing.

Pub. L. 98-36 added subsec. (j).

1980 - Subsecs. (a) and (d). Pub. L. 96-513 inserted ''in this chapter'' after ''hereinafter''.

1978 - Subsec. (b)(3). Pub. L. 95-589 added par. (3).

EFFECTIVE DATE OF 1980 AMENDMENT

Amendment by Pub. L. 96-513 effective Dec. 12, 1980, see section 701(b)(3) of Pub. L. 96-513, set out as a note under section 101 of this title.

-TRANS-

TRANSFER OF FUNCTIONS

Section 8091 of Pub. L. 101-511 provided that: ''Notwithstanding any other provision of law, all authority of the Board of Regents of the Uniformed Services University of the Health Sciences is hereby transferred to the Secretary of Defense, and the Board hereafter shall be an advisory board to the Secretary of Defense.''

-SECREF-

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in section 2114 of this title.

-CITE-

10 USC Sec. 2114 01/06/03

-EXPCITE-

TITLE 10 - ARMED FORCES
Subtitle A - General Military Law
PART III - TRAINING AND EDUCATION
CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-HEAD-

Sec. 2114. Students: selection; status; obligation

-STATUTE-

(a) Medical students at the University shall be selected under procedures prescribed by the Secretary of Defense. In so prescribing, the Secretary shall consider the recommendations of the Board. However, selection procedures prescribed by the Secretary of Defense shall emphasize the basic requirement that students demonstrate sincere motivation and dedication to a career in the uniformed services (as defined in section 1072(1) of this title).

(b) Medical students shall be commissioned officers of a uniformed service as determined under regulations prescribed by the Secretary of Defense after consulting with the Secretary of Health and Human Services. Notwithstanding any other provision of law, they shall serve on active duty in pay grade O-1 with full pay and allowances of that grade. Upon graduation they shall be appointed

in a regular component, if qualified, unless they are covered by section 2115 of this title. Medical students who graduate shall be required, except as provided in section 2115 of this title, to serve thereafter on active duty under such regulations as the Secretary of Defense or the Secretary of Health and Human Services, as appropriate, may prescribe for not less than seven years, unless sooner released. Upon completion of, or release from, the active-duty service obligation, a member of the program who served on active-duty for less than 10 years shall serve in the Ready Reserve for the period specified in the following table:

Period of Service on Active Duty	Ready Reserve Obligation
Less than 8 years	6 years
8 years or more, but less than 9	4 years
9 years or more, but less than 10	2 years

The service credit exclusions specified in section 2126 of this title shall apply to students covered by this section.

(c) A period of time spent in military intern or residency training shall not be creditable in satisfying a commissioned service obligation imposed by this section.

(d) A medical student who, under regulations prescribed by the Secretary of Defense, is dropped from the program for deficiency in conduct or studies, or for other reasons, may be required to perform active duty in an appropriate military capacity in accordance with the active duty obligation imposed by this section. In no case shall any such student be required to serve on active duty for any period in excess of a period equal to the period he participated in the program, except that in no case may any such student be required to serve on active duty less than one year.

(e)(1) The Secretary of Defense may enter into agreements with foreign military medical schools for reciprocal education programs under which students at the University receive specialized military medical instruction at the foreign military medical school and military medical personnel of the country of such medical school receive specialized military medical instruction at the University. Any such agreement may be made on a reimbursable basis or a nonreimbursable basis.

(2) Not more than 40 persons at any one time may receive instruction at the University under this subsection. Attendance of such persons at the University may not result in a decrease in the number of students enrolled in the University. Subsection (b) does not apply to students receiving instruction under this subsection.

(3) The Dean of the University, with the approval of the Secretary of Defense, shall determine the countries from which persons may be selected to receive instruction under this subsection and the number of persons that may be selected from each country. The Dean may establish qualifications and methods of selection and shall select those persons who will be permitted to receive instruction at the University. The qualifications established shall be comparable to those required of United States citizens.

(4) Each foreign country from which a student is permitted to receive instruction at the University under this subsection shall reimburse the United States for the cost of providing such instruction, unless such reimbursement is waived by the Secretary of Defense. The Secretary of Defense shall prescribe the rates for

reimbursement under this paragraph.

(5) Except as the Dean determines, a person receiving instruction at the University under this subsection is subject to the same regulations governing attendance, discipline, discharge, and dismissal as a student enrolled in the University. The Secretary may prescribe regulations with respect to access to classified information by a person receiving instruction under this subsection that differ from the regulations that apply to a student enrolled in the University.

(f) In this section, the term ''commissioned service obligation'' means, with respect to an officer who is a graduate of the University, the period beginning on the date of the appointment of the officer in a regular component after graduation and ending on the tenth anniversary of that appointment.

(g) The Secretary of Defense shall establish such selection procedures, service obligations, and other requirements as the Secretary considers appropriate for graduate students (other than medical students) in a postdoctoral, postgraduate, or technological institute established pursuant to section 2113(h) of this title.

(h) A graduate of the University who is relieved of the graduate's active-duty service obligation under subsection (b) before the completion of that active-duty service obligation may be given, with or without the consent of the graduate, an alternative obligation in the same manner as provided in subparagraphs (A) and (B) of paragraph (1) of section 2123(e) of this title or paragraph (2) of such section for members of the Armed Forces Health Professions Scholarship and Financial Assistance program.

-SOURCE-

(Added Pub. L. 92-426, Sec. 2(a), Sept. 21, 1972, 86 Stat. 715; amended Pub. L. 96-107, title VIII, Sec. 803(b), Nov. 9, 1979, 93 Stat. 812; Pub. L. 96-513, title I, Sec. 114, title V, Sec. 511(65), Dec. 12, 1980, 94 Stat. 2877, 2926; Pub. L. 98-525, title XV, Sec. 1535, Oct. 19, 1984, 98 Stat. 2633; Pub. L. 101-189, div. A, title V, Sec. 511(a), Nov. 29, 1989, 103 Stat. 1439; Pub. L. 101-510, div. A, title V, Sec. 533(a), (b), Nov. 5, 1990, 104 Stat. 1564; Pub. L. 103-160, div. A, title VII, Sec. 732(a), Nov. 30, 1993, 107 Stat. 1696; Pub. L. 104-106, div. A, title X, Sec. 1072(b)(3), Feb. 10, 1996, 110 Stat. 446; Pub. L. 104-201, div. A, title VII, Sec. 741(b), Sept. 23, 1996, 110 Stat. 2599; Pub. L. 105-85, div. A, title X, Sec. 1073(a)(38), Nov. 18, 1997, 111 Stat. 1902.)

-MISC1-

AMENDMENTS

1997 - Subsec. (h). Pub. L. 105-85 substituted ''section 2123(e)'' for ''section 2123(e)(1)''.

1996 - Subsec. (e)(1). Pub. L. 104-106 substituted ''The Secretary of Defense'' for ''The Board, upon approval of the Secretary of Defense,''.

Subsec. (h). Pub. L. 104-201 added subsec. (h).

1993 - Subsec. (a). Pub. L. 103-160, Sec. 732(a)(1), substituted ''Medical students'' for ''Students'' in first sentence.

Subsec. (b). Pub. L. 103-160, Sec. 732(a)(2), substituted ''Medical students'' for ''Students'' in two places.

Subsec. (d). Pub. L. 103-160, Sec. 732(a)(3), substituted ''medical student'' for ''member of the program'' in first sentence

and ''any such student'' for ''any such member'' in two places in second sentence.

Subsec. (g). Pub. L. 103-160, Sec. 732(a)(4), added subsec. (g).

1990 - Subsec. (b). Pub. L. 101-510, Sec. 533(b)(1), after fourth sentence inserted provisions relating to the time obligation to be served in the Ready Reserve upon completion of, or release from, the active-duty service obligation for members of the program who served on active duty for less than 10 years.

Pub. L. 101-510, Sec. 533(a), substituted ''seven years'' for ''10 years'' in fourth sentence.

Subsec. (c). Pub. L. 101-510, Sec. 533(b)(2), substituted ''a commissioned service obligation'' for ''an active duty obligation''.

Subsec. (f). Pub. L. 101-510, Sec. 533(b)(3), added subsec. (f).

1989 - Subsec. (b). Pub. L. 101-189 substituted ''10 years'' for ''seven years'' in fourth sentence.

1984 - Subsec. (e). Pub. L. 98-525 added subsec. (e).

1980 - Subsec. (b). Pub. L. 96-513, Sec. 511(65), substituted ''Secretary of Health and Human Services'' for ''Secretary of Health, Education, and Welfare'' wherever appearing.

Pub. L. 96-513, Sec. 114, struck out provision under which officers attending the Uniformed Services University of Health Sciences were not counted against authorized military strengths.

1979 - Subsec. (b). Pub. L. 96-107 substituted ''uniformed'' for ''uniform''.

EFFECTIVE DATE OF 1996 AMENDMENT

Section 741(c) of Pub. L. 104-201 provided that: ''The amendments made by this section (amending this section and section 2123 of this title) shall apply with respect to individuals who first become members of the Armed Forces Health Professions Scholarship and Financial Assistance program or students of the Uniformed Services University of the Health Sciences on or after October 1, 1996.''

EFFECTIVE DATE OF 1993 AMENDMENT

Section 732(b) of Pub. L. 103-160 provided that: ''The amendments made by subsection (a) (amending this section) shall apply with respect to students attending the Uniformed Services University of the Health Sciences on or after the date of the enactment of this Act (Nov. 30, 1993).''

EFFECTIVE DATE OF 1990 AMENDMENT

Section 533(d) of Pub. L. 101-510 provided that: ''The amendment made by subsection (b) (amending this section) shall take effect on December 31, 1991, and shall apply to persons who are first admitted to the Uniformed Services University of the Health Sciences after that date.''

EFFECTIVE DATE OF 1989 AMENDMENT

Section 511(e) of Pub. L. 101-189, as amended by Pub. L. 101-510, div. A, title V, Sec. 533(c), Nov. 5, 1990, 104 Stat. 1564, provided that: ''The amendments made by this section (amending this section and sections 4348, 6959, and 9348 of this title) shall apply to persons who are first admitted to one of the military service academies after December 31, 1991.''

EFFECTIVE DATE OF 1980 AMENDMENT

Amendment by section 114 of Pub. L. 96-513 effective Sept. 15, 1981, but the authority to prescribe regulations under the amendment by Pub. L. 96-513 effective on Dec. 12, 1980, see section 701 of Pub. L. 96-513, set out as a note under section 101 of this

title.

Amendment by section 511(65) of Pub. L. 96-513 effective Dec. 12, 1980, see section 701(b)(3) of Pub. L. 96-513.

-TRANS-

TRANSFER OF FUNCTIONS

For transfer of authority of Board of Regents of Uniformed Services University of the Health Sciences to Secretary of Defense, see section 8091 of Pub. L. 101-511, set out as a note under section 2113 of this title.

-MISC5-

TRANSITION PROVISIONS

Section 741(d)(2) of Pub. L. 104-201 provided that: ''In the case of any person who, as of October 1, 1996, is serving an active-duty service obligation as a graduate of the Uniformed Services University of the Health Sciences or is incurring an active-duty service obligation as a student of the University, and who is subsequently relieved of the active-duty service obligation before the completion of the obligation, the alternative obligations authorized by the amendment made by subsection (b) (amending this section) may be implemented by the Secretary of Defense with the agreement of the person.''

-CITE-

10 USC Sec. 2115 01/06/03

-EXPCITE-

TITLE 10 - ARMED FORCES
Subtitle A - General Military Law
PART III - TRAINING AND EDUCATION
CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-HEAD-

Sec. 2115. Graduates: limitation on number permitted to perform civilian Federal service

-STATUTE-

The Secretary of Defense may allow not more than 20 percent of the graduates of each class at the University to perform civilian Federal service for not less than seven years following the completion of their professional education in lieu of active duty in a uniformed service if the needs of the uniformed services do not require that such graduates perform active duty in a uniformed service and as long as the Secretary of Defense does not recall such persons to active duty in the uniformed services. Such persons who execute an agreement in writing to perform such civilian Federal service may be released from active duty following the completion of their professional education. The location and type of their duty shall be determined by the Secretary of Defense after consultation with the heads of Federal agencies concerned.

-SOURCE-

(Added Pub. L. 92-426, Sec. 2(a), Sept. 21, 1972, 86 Stat. 716; amended Pub. L. 96-107, title VIII, Sec. 803(c)(1), (2), Nov. 9, 1979, 93 Stat. 812.)

-MISC1-

AMENDMENTS

1979 - Pub. L. 96-107, Sec. 803(c)(2), substituted ''permitted'' for ''electing'' and ''service'' for ''duty'' in section catchline.

Pub. L. 96-107, Sec. 803(c)(1), substituted provisions respecting authority of the Secretary of Defense to allow graduates to perform civilian Federal service and the execution of agreements for such service as prerequisites for release from active duty following completion of education, for provisions relating to limitations on the number of graduates electing to perform civilian Federal duty, agreements respecting such service, and release from active duty upon completion of their education.

-SECREF-

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in section 2114 of this title.

-CITE-

10 USC Sec. 2116 01/06/03

-EXPCITE-

TITLE 10 - ARMED FORCES
Subtitle A - General Military Law
PART III - TRAINING AND EDUCATION
CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-HEAD-

Sec. 2116. Military nursing research

-STATUTE-

(a) Definitions. - In this section:

(1) The term ''military nursing research'' means research on the furnishing of care and services by nurses in the armed forces.

(2) The term ''TriService Nursing Research Program'' means the program of military nursing research authorized under this section.

(b) Program Authorized. - The Secretary of Defense may establish at the University a program of military nursing research.

(c) TriService Research Group. - The TriService Nursing Research Program shall be administered by a TriService Nursing Research Group composed of Army, Navy, and Air Force nurses who are involved in military nursing research and are designated by the Secretary concerned to serve as members of the group.

(d) Duties of Group. - The TriService Nursing Research Group shall -

(1) develop for the Department of Defense recommended guidelines for requesting, reviewing, and funding proposed military nursing research projects; and

(2) make available to Army, Navy, and Air Force nurses and Department of Defense officials concerned with military nursing research -

(A) information about nursing research projects that are being developed or carried out in the Army, Navy, and Air Force; and

(B) expertise and information beneficial to the encouragement of meaningful nursing research.

(e) Research Topics. - For purposes of this section, military nursing research includes research on the following issues:

(1) Issues regarding how to improve the results of nursing care and services provided in the armed forces in time of peace.

(2) Issues regarding how to improve the results of nursing care and services provided in the armed forces in time of war.

(3) Issues regarding how to prevent complications associated with battle injuries.

(4) Issues regarding how to prevent complications associated with the transporting of patients in the military medical evacuation system.

(5) Issues regarding how to improve methods of training nursing personnel.

(6) Clinical nursing issues, including such issues as prevention and treatment of child abuse and spouse abuse.

(7) Women's health issues.

(8) Wellness issues.

(9) Preventive medicine issues.

(10) Home care management issues.

(11) Case management issues.

-SOURCE-

(Added Pub. L. 104-106, div. A, title VII, Sec. 741(a), Feb. 10, 1996, 110 Stat. 384.)

-MISC1-

PRIOR PROVISIONS

A prior section 2116, added Pub. L. 92-426, Sec. 2(a), Sept. 21, 1972, 86 Stat. 716, directed Secretary of Defense to report periodically to Committees on Armed Services of the Senate and House of Representatives on feasibility of establishing educational institutions similar or identical to University at any other locations he deemed appropriate, with last such report to be submitted by June 30, 1976, prior to repeal by Pub. L. 98-94, title XII, Sec. 1268(12)(A), Sept. 24, 1983, 97 Stat. 706.

-CITE-

10 USC Sec. 2117 01/06/03

-EXPCITE-

TITLE 10 - ARMED FORCES
Subtitle A - General Military Law
PART III - TRAINING AND EDUCATION
CHAPTER 104 - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

-HEAD-

(Sec. 2117. Repealed. Pub. L. 101-510, div. A, title XIV, Sec. 1484(b)(2)(A), Nov. 5, 1990, 104 Stat. 1716)

-MISC1-

Section, added Pub. L. 92-426, Sec. 2(a), Sept. 21, 1972, 86 Stat. 716, authorized appropriations for the Uniformed Services University of the Health Sciences.

-CITE-

Department of Defense

DIRECTIVE

NUMBER 5105.45

March 9, 2000

DA&M

SUBJECT: Uniformed Services University of the Health Sciences (USUHS)

(a) DoD Directive 5105.45, subject as above, May 17, 1999 (hereby canceled)
(b) Chapter 104 et seq. of title 10, United States Code
(c) Secretary of Defense Report, "Defense Reform Initiative," November 1997[1]
(d) Program Budget Decision 711R, "Defense Reform Initiative - Office of the Secretary of Defense and the Defense Agencies," December 17, 1997
(e) through (g), see enclosure 1

1. REISSUANCE AND PURPOSE

This Directive reissues reference (a) to:

1.1. Update the mission, policy, organization and management, responsibilities and functions, relationships, and authorities of the USUHS.

1.2. Provide for USUHS governance under reference (b).

1.3. Establish the USUHS Executive Committee, pursuant to the direction of reference (c).

1.4. Designate the Secretary of the Navy as the "DoD Executive Agent" for administrative support of the USUHS, in accordance with reference (d).

1 Availabile at http://www.defenselink.mil/pubs/dodreform/

2. APPLICABILITY

This Directive applies to the Office of the Secretary of Defense (OSD), the Military Departments, the Chairman of the Joint Chiefs of Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities within the Department of Defense (hereafter referred to collectively as "the DoD Components").

3. DEFINITIONS

3.1. Academic Affairs. Faculty appointments, promotions and organization, awarding of degrees, curriculum design and implementation, academic requirements for admission and graduation, and related matters vital to the academic well-being of the USUHS.

3.2. Uniformed Services. The Army, the Navy, the Air Force, the Marine Corps, the Coast Guard, the Commissioned Corps of the U.S. Public Health Service, and the Commissioned Corps of the National Oceanic and Atmospheric Administration.

4. MISSION

The USUHS shall:

4.1. Educate and train competent medical personnel qualified to serve the needs of the Uniformed Services through providing the highest quality education programs in the health sciences.

4.2. Place high priority on educating and training personnel to meet the combat and peacetime medical needs of the Armed Forces.

4.3. Grant applicable advanced academic degrees; establish postdoctoral and postgraduate programs, and technological institutes; conduct medical readiness training and continuing education for members of the Uniformed Services in the health professions; and prepare individuals for careers in the health professions in the Uniformed Services.

5. POLICY

It is DoD policy that:

5.1. Consistent with the performance of the DoD mission and with established practices covering academic independence and integrity in the fields of medical and health sciences education, the Department of Defense recognizes the unique role of the USUHS Board of Regents in advising the Secretary of Defense. Consistent with applicable law and accomplishment of the DoD mission, the Assistant Secretary of Defense for Health Affairs (ASD(HA)), the USUHS Executive Committee, and the President of the USUHS shall be guided by the advice of the USUHS Board of Regents on academic affairs.

5.2. USUHS funding shall be within the Defense Health Program.

6. ORGANIZATION AND MANAGEMENT

6.1. The USUHS is a joint entity of the three Military Departments, subject to the overall supervision of the ASD(HA) and the management direction of the USUHS Executive Committee, and shall consist of the following:

6.1.1. A Board of Regents that shall be established and operated, in accordance with 5 U.S.C. Appendix (Federal Advisory Committee Act) (reference (e)), and shall consist of members appointed under Section 2113(a), Chapter 104 of 10 U.S.C. (reference (b)).

6.1.2. A President of the USUHS, who shall be the chief executive officer of the USUHS, and who also is the Dean of the USUHS, as described in reference (b), and who shall report to the ASD(HA), through the USUHS Executive Committee.

6.1.3. A Dean of the F. Edward Hebert School of Medicine, who shall function as the chief academic officer of the F. Edward Hebert School of Medicine and report to the President of the USUHS.

6.1.4. A Dean of the Graduate School of Nursing, who shall function as the chief academic officer of the Graduate School of Nursing and report to the President of the USUHS.

6.1.5. Other subordinate positions and elements as are established by the President of the USUHS within authorized resources.

6.1.6. Students selected under procedures prescribed, in accordance with Chapter 104 of reference (b), and graduate students.

6.2. The USUHS Executive Committee is established to provide the supervision and management of the USUHS, pursuant to the Defense Reform Initiative (reference (c)), and consistent with the direction of the Secretary of Defense to reduce the operational and program management responsibilities of the OSD.

6.2.1. The USUHS Executive Committee shall consist of the Surgeons General of the three Military Departments and shall report to the ASD(HA) on USUHS matters.

6.2.2. A Chair shall be designated from among the membership, as mutually determined by the membership.

6.2.3. The President of the USUHS shall provide an Executive Secretary and associated staff support.

6.2.4. The DoD Executive Agent shall be represented on the USUHS Executive Committee by the Surgeon General of the Navy.

7. RESPONSIBILITIES AND FUNCTIONS

7.1. The Assistant Secretary of Defense for Health Affairs, under the Under Secretary of Defense for Personnel and Readiness, shall:

7.1.1. In accordance with DoD Directive 5136.1 (reference (f)), exercise authority, direction and control over the medical personnel, facilities, programs, funding, and associated resources in the Department of Defense as they relate to the USUHS.

7.1.2. Exercise the authorities over the USUHS vested in the Secretary of Defense by Chapter 104 of 10 U.S.C. (reference (b)), except that the authority to appoint the President of the USUHS is reserved to the Secretary of Defense.

7.1.3. Develop policies and issue policy guidelines to ensure the effective integration of USUHS programs and activities in the DoD Health Program. That includes, but is not limited to, the development of DoD Directives, the issuance of DoD Instructions, and OSD-level participation in the Planning, Programming, and Budgeting System process.

7.1.4. Ensure that the advice of the Board of Regents in matters of academic affairs is considered, in accordance with the policy in section 5.1., above.

7.1.5. Ensure that the Board of Regents shall participate in the governance of the USUHS by advising the Secretary of Defense, through the ASD(HA), on academic affairs and on the administration and management of the USUHS.

7.1.6. Ensure that the President of the USUHS shall:

7.1.6.1. Make certain that educational programs leading to a Doctor of Medicine or other advanced degrees in the health professions meet the standards of applicable and recognized, accrediting, licensing, and certifying Agencies.

7.1.6.2. Carry out those responsibilities and functions pertaining to the supervision and management of University programs, activities, personnel, and resources as the ASD(HA) and Executive Committee prescribe.

7.1.7. Ensure that the Dean of the F. Edward Hebert School of Medicine shall develop and administer policies and procedures on the academic affairs of the F. Edward Hebert School of Medicine.

7.1.8. Ensure that the Dean of the Graduate School of Nursing shall develop and administer policies and procedures on the academic affairs of the Graduate School of Nursing.

7.2. The Secretary of the Navy shall serve as the DoD Executive Agent for administrative support of the USUHS, to include budget, personnel, information, facilities, and other resource responsibilities required for the mission of the USUHS.

7.2.1. Civilian personnel authorizations shall be under the purview of the DoD Executive Agent and civilian employees shall be carried on the rolls of the Department of the Navy.

7.2.2. The USUHS funding and personnel requirements shall not be offset against the Navy Surgeon General budget or work-year allocations.

7.3. The Director, Defense Legal Services Agency, shall provide legal advice and services for the USUHS.

7.4. The USUHS Executive Committee, consistent with the policy guidance of the ASD(HA), shall:

7.4.1. Oversee the operation of the USUHS and provide management direction to the President of the USUHS on the day-to-day operation of the USUHS.

7.4.2. Provide guidance to the President of the USUHS and advice to the ASD(HA) on the annual USUHS program and budget submissions.

7.4.3. Provide advice to the ASD(HA) on health policy matters relating to the USUHS.

8. RELATIONSHIPS

8.1. In carrying out the responsibilities and functions of the chief executive officer of the USUHS, the President of the USUHS shall:

8.1.1. Obtain advice from the USUHS Executive Committee and the Board of Regents, as necessary, to assist the President of the USUHS in performing the President's duties.

8.1.2. Coordinate and exchange information and advice with elements of the OSD and the other DoD Components having collateral or related responsibilities.

8.1.3. Make use of established facilities and services in the Department of Defense and other Government Agencies, when practical, to avoid duplication and achieve maximum efficiency and economy.

8.1.4. Consult and coordinate with other Governmental Agencies and non-Governmental agencies on matters for the mission and programs of the USUHS.

8.2. The Heads of the DoD Components shall coordinate with the ASD(HA) on all matters relating to the mission and programs of the USUHS.

9. AUTHORITIES

The President of the USUHS is specifically delegated the authority to:

9.1. Obtain reports, information, advice, and assistance consistent with DoD Directive 8910.1 (reference (g)), as necessary, to carry out assigned responsibilities and functions.

9.2. Communicate directly with appropriate representatives of the DoD Components and other Executive Departments and Agencies, and members of the public, as appropriate, on matters related to the mission and programs of the USUHS.

9.3. Appoint civilian members of the faculty and staff under salary schedules and grant retirement and other related benefits prescribed by the Secretary of Defense so as to place the employees of the USUHS on a comparable basis with the employees of fully accredited schools of the health professions within the vicinity of the District of Columbia, as provided by law (reference (b)).

9.4. Exercise the administrative authorities contained in enclosure 2.

10. EFFECTIVE DATE

This Directive is effective immediately.

John J. Hamre
Deputy Secretary of Defense

Enclosures - 2
E1. References, continued
E2. Delegations of Authority

E1. ENCLOSURE 1

REFERENCES, continued

(e) Title 5, United States Code
(f) DoD Directive 5136.1, "Assistant Secretary of Defense for Health Affairs (ASD(HA))," May 27, 1994
(g) DoD Directive 8910.1, "Management and Control of Information Requirements," June 11, 1993

E2. ENCLOSURE 2

DELEGATIONS OF AUTHORITY

E2.1.1. Under the authority vested in the Secretary of Defense, and subject to the authority, direction, and control of the Secretary of Defense, the Under Secretary of Defense for Personnel and Readiness, and the ASD(HA), the President of the USUHS is hereby delegated authority, subject to paragraph E2.1.2., below, as required in the administration and operation of the USUHS, to:

E2.1.1.1. Exercise the powers vested in the Secretary of Defense by 5 U.S.C. 301, 302(b), 3101, and 5107 on the employment, direction, and general administration of USUHS civilian personnel.

E2.1.1.2. Fix rates of pay for wage-rate employees exempted from the "Classification Act of 1949" by 5 U.S.C. 5102 on the basis of rates established under the Federal Wage System. The fixing of such rates shall follow the wage schedule established by the DoD Wage Fixing Authority.

E2.1.1.3. Administer oaths of office to those entering the Executive Branch of the Federal Government, in accordance with 5 U.S.C. 2903, and designate in writing, as may be necessary, officers and employees of the USUHS to perform that function.

E2.1.1.4. Establish a USUHS Incentive Awards Board and pay cash awards to, and incur necessary expenses for the honorary recognition of, civilian employees of the Government whose suggestions, inventions, superior accomplishments, or other personal efforts, including special acts or services, benefit or affect the USUHS or its subordinate activities, in accordance with 5 U.S.C. 4503; Office of Personnel Management (OPM) regulations; and DoD 1400.25-M, "DoD Civilian Personnel Manual (CPM)," Chapter 400, Subchapter 451, "Awards," December 1996, authorized by DoD Directive 1400.25, November 25, 1996.

E2.1.1.5. Maintain an official seal and attest to the authenticity of official USUHS records under that seal.

E2.1.1.6. Establish advisory committees and employ part-time advisors, as approved by the Secretary of Defense, for the performance of USUHS functions,

consistent with the 10 U.S.C. 173, 5 U.S.C. 3109(b), and DoD Directive 5105.4, "Department of Defense Federal Advisory Committee Management Program," September 5, 1989.

E2.1.1.7. In accordance with Executive Order (E.O.) 10450, "Security Requirements for Government Employment," April 27, 1953; E.O. 12333, "United States Intelligence Activities," December 4, 1981; and E.O. 12968, "Access to Classified Information," August 4, 1995; and DoD Directive 5200.2, "DoD Personnel Security Program (DoDSP)," April 9, 1999, as appropriate:

E2.1.1.7.1. Designate any position in the USUHS as a "sensitive" position.

E2.1.1.7.2. Authorize, in case of an emergency, the appointment of a person to a sensitive position in the USUHS for a limited period of time and for whom a full field investigation or other applicable investigation, including the National Agency Check, has not been completed.

E2.1.1.7.3. Initiate personnel security investigations, and, if necessary, in the interest of national security, suspend a security clearance for personnel assigned, detailed to, or employed by the USUHS. Any action under this paragraph shall be taken, in accordance with procedures prescribed in DoD 5200.2-R, "DoD Personnel Security Program," January 1987, authorized by DoD Directive 5200.2, April 9, 1999.

E2.1.1.8. Act as the agent for the collection and payment of employment taxes imposed by Chapter 21 of the Internal Revenue Code of 1954, as amended; and, as such agent, make all determinations and certifications required or provided for under Section 3122 of the Internal Revenue Code of 1954, as amended, and Sections 205(p)(1) and 205(p)(2) of the "Social Security Act," as amended (42 U.S.C. 405(p)(1) and 405(p)(2)), about USUHS employees.

E2.1.1.9. Authorize and approve the following:

E2.1.1.9.1. Temporary duty travel for military personnel assigned or detailed to the USUHS, in accordance with the Joint Federal Travel Regulations (JFTR), Volume 1, "Uniformed Service Members," current edition.

E2.1.1.9.2. Travel for USUHS civilian personnel, in accordance with the Joint Travel Regulations (JTR), Volume 2, "DoD Civilian Personnel," current edition.

E2.1.1.9.3. Invitational travel to non-DoD employees whose

consultative, advisory, or other highly specialized technical services are required in a capacity that is directly related to, or with, USUHS activities, in accordance with the JTR, Volume 2, "DoD Civilian Personnel," current edition.

E2.1.1.9.4. Overtime work for the USUHS civilian personnel, in accordance with 5 U.S.C. Chapter 55, Subchapter V, and applicable OPM regulations.

E2.1.1.10. Approve the expenditure of funds available for travel by military personnel assigned or detailed to the USUHS for expenses incident to attendance at meetings of technical, scientific, professional, or other similar organizations in such instances when the approval of the Secretary of Defense, or designee, is required by 37 U.S.C. 412 and 5 U.S.C. 4110 and 4111.

E2.1.1.11. Develop, establish, and maintain an active and continuing Records Management Program under 44 U.S.C. 3102 and DoD Directive 5015.2, "DoD Records Management Program," April 11, 1997.

E2.1.1.12. Utilize the Government purchase card for making micro-purchases of material and services, other than personal services, for the USUHS, when it is determined more advantageous and consistent with the best interests of the Government.

E2.1.1.13. Authorize the publication of advertisements, notices, or proposals in newspapers, magazines, or other public periodicals, as required for the effective administration and operation of the USUHS, consistent with 44 U.S.C. 3702.

E2.1.1.14. Establish and maintain, for the functions assigned, an applicable publications system for the promulgation of common supply and service regulations, instructions, and reference documents, and changes thereto, under the policies and prescribed procedures in DoD 5025.1-M, "Department of Defense Directives System Procedures," August 1994, authorized by DoD Directive 5025.1, June 24, 1994.

E2.1.1.15. Enter into support and service agreements with the Military Departments, the other DoD Components, and the other Government Agencies, as required for the effective performance of USUHS functions and responsibilities.

E2.1.1.16. Enter into and administer contracts, directly or through a Military Department, a DoD contract administration services component, or other Federal Agency, as applicable for supplies, equipment, and services required to accomplish the mission of the USUHS. To the extent that any law or E.O. specifically limits the exercise of such authority to persons at the Secretariat level, such authority shall be

exercised by the applicable Under Secretary of Defense or Assistant Secretary of Defense.

E2.1.1.17. Establish and maintain appropriate property accounts for the USUHS, and appoint Boards of Survey, approve reports of survey, relieve personal liability, and drop accountability for USUHS property in the authorized property accounts that is lost, damaged, stolen, destroyed, or otherwise rendered unserviceable, in accordance with applicable laws and regulations.

E2.1.1.18. Promulgate the necessary security regulations for the protection of property and places under the jurisdiction of the President of the USUHS, under DoD Directive 5200.8, "Security of DoD Installations and Resources," April 25, 1991.

E2.1.1.19. Exercise the authority delegated to the Secretary of Defense by the Administrator of the General Services Administration for the disposal of surplus personal property.

E2.1.2. The delegations of authority provided by paragraph E2.1.1, above, are also subject to the following, in order of precedence:

E2.1.2.1. The authority, direction, and control of the ASD(HA).

E2.1.2.2. The management direction and control of the USUHS Executive Committee.

E2.1.2.3. Regulations and procedures of the DoD Executive Agent, applicable to the USUHS, under section 7.2. of this Directive, for administration of the USUHS.

E2.1.3. The President of the USUHS may redelegate those authorities, as applicable, and in writing, except as otherwise specifically indicated in paragraph E2.1.1. through subparagraph E2.1.2.3., above, or as otherwise provided by law or regulation.

CHARTER

THE BOARD OF REGENTS
OF THE
UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

A. **Official Designation:** The Advisory Committee shall be known as the Board of Regents of the Uniformed Services University of the Health Sciences (USUHS). As an advisory committee, the Board will be governed by the provisions of the Federal Advisory Committee Act (FACA), the GSA Final Rule (41 C.F.R. Part 101-6), and DoD Directive 5105.4, the "DoD Federal Advisory Committee Management Program."

B. **Objective and Scope of Activity:** To provide advice and guidance to the Secretary of Defense through the Assistant Secretary of Defense for Health Affairs for the operation of the Uniformed Services University of the Health Sciences. To assure that said operation is in the best tradition of academia and in compliance with the appropriate accreditation authorities.

C. **Period of Time Required:** This Committee is established pursuant to 10 U.S.C. 2112 et seq. and exists indefinitely.

D. **Official or Sponsoring Proponent to Whom the Committee Reports:** The Secretary of Defense through the Assistant Secretary of Defense for Health Affairs.

E. **Support Agency:** The Uniformed Services University of the Health Sciences.

F. **Duties and Responsibilities:**

1. The business of the University shall be conducted by the Secretary of Defense through the Assistant Secretary of Defense for Health Affairs and the USUHS Executive Committee with the advice of the Board of Regents (hereinafter referred to as the "Board") with funds appropriated for and provided by the Department of Defense within the Defense Health Program. The Board shall consist of

a. nine persons outstanding in the fields of health and health education who shall be appointed from civilian life by the President of the United States, by and with the advice and consent of the Senate;

b. the Secretary of Defense, or designee, who shall be an ex-officio member;

c. the Surgeons General of the Uniformed Services, who shall be ex-officio members; and

d. the person referred to in subsection (4).

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that high standards of health

10. The Board may recommend to the Assistant Secretary of Defense for Health Affairs that the University, upon approval of the Secretary of Defense, may enter into agreements with foreign military medical schools for reciprocal education programs under which students at the University receive specialized military medical instruction at the foreign military medical school and military medical personnel of the country of such medical school receive specialized military medical instruction at the University. Any such agreement may be made on a reimbursable basis or a nonreimbursable basis.

11. In carrying out the specific functions listed above and in performing other activities, the Board shall serve as the primary advisor to the Secretary of Defense, to the Assistant Secretary of Defense (Health Affairs), to the USUHS Executive Committee, and to the President of USUHS concerning academic affairs of the University.

G. **Estimated Annual Operating Costs and Estimated Man-Years:** $186,700.00; 2.2 FTE

H. **Number of Meetings:** This Committee is established by statute, 10 U.S.C. 2112 et seq., and shall meet at least four (4) times per year and as often as the Secretary or Chairperson of the Board shall deem necessary to conduct University business.

I. **Termination Date:** The Committee by statute has no termination date (Cf Sec. 8091, P.L. 101-511, DoD Appropriations Act, 1991).

J. **Date Charter is Filed:** April 4, 2003

Bylaws
of the
Uniformed Services University of the Health Sciences
Board of Regents

Article I

Name

The Advisory Committee shall be known as the Board of Regents of the Uniformed Services University of the Health Sciences (USUHS).

Official Designation

As a federal advisory committee, the Board will be governed by the provisions of the Federal Advisory Committee Act (FACA), the GSA Final Rule (41 C.F.R. Part 101-6), DoD Directive 5105.4, "Federal Advisory Committee Management Program," and DoD Directive 5105.45, "Uniformed Services University of the Health Sciences."

Article II

Purpose and Objective

A. The purpose of the Board of Regents shall be to provide advice and guidance to the Secretary of Defense through the Assistant Secretary of Defense for Health Affairs and also to the USUHS Executive Committee for the operation of the Uniformed Services University of the Health Sciences.

B. To assure that said operation is in the best tradition of academia and in compliance with the appropriate accreditation authorities.

C. Other specific purposes as identified in DoD Directive 5105.45.

Article III

Members
The Board shall consist of:

A. Nine persons, outstanding in the fields of health and health education, who shall be appointed from civilian life by the President of the United States, by and with the advice and consent of the Senate;

B. The Secretary of Defense, or designee, who shall be an ex-officio Member;

C. The Surgeons General of the Uniformed Services, or their designees, who shall be ex-officio Members; and

D. The President/Dean of the University who shall also serve as a non-voting ex-officio Member of the Board.

Term of Office
The term of office for each Member of the Board (other than an ex-officio Member) shall be six years except:

A. Any Member appointed to fill a vacancy, occurring before the expiration of the term for which his predecessor was appointed, shall be appointed for the remainder of such term;

B. Any Member whose term of office has expired shall continue to serve until a successor is appointed. These appointments will be renewed annually on the anniversary of the original appointment date.

Appointment of Chair

One of the Members of the Board (other than ex-officio Members) shall be designated by the President of the United States as Chair and shall be the Presiding Officer of the Board. The term of the Chair shall continue until a successor is appointed.

Selection of Vice-Chair

The Chair shall appoint a person to serve as Vice Chair.

Article IV

Duties and Responsibilities

A. The Board shall advise the Secretary of Defense, through the Assistant Secretary of Defense, regarding the appointment of the President of the University and the appointments of Deans to the School of Medicine and the Graduate School of Nursing, and approve the nomination from the Deans of the Schools of the Department Chairs. (See U.S. Code Title 10, Section 2113, attached.)

B. The Board shall be informed by the President of the University of appointments of associate deans and assistant deans.

C. The Board shall recommend the awarding of appropriate academic degrees to successful candidates.

D. The Board will ensure that the University maintains appropriate accreditation requirements.

E. The Board shall act upon recommendations made by the Committees on Appointments, Promotion, and Tenure.

F. The Board shall act upon recommendations made to establish new academic programs. A reading will occur when a proposal is presented; action will be taken at the next regularly scheduled subsequent meeting.

G. The Board shall perform other duties as deemed appropriate and within its charter.

Article V

Advisors

A. The Deans of the Schools are advisors to the Board.

B. The Commanders of affiliated teaching hospitals are advisors to the Board.

C. A military advisor to the Board will provide guidance from an operational perspective.

D. The Board may invite other individuals to be advisors.

Article VI

Committees

A. Executive Committee of the Board of Regents

Designation

The Board shall designate a body as the Executive Committee. The Executive Committee shall report to the Board.

Purpose

The Committee shall be responsible for conducting Board business between Board meetings. Actions taken by the Committee shall be submitted for ratification at the next regularly scheduled meeting.

Membership

The Committee will be composed of:

a. Chair, Board of Regents
b. Vice Chair, Board of Regents
c. Chair, USU Executive Committee
d. Two members selected by the Board
e. President, USU

Meetings

The Executive Committee of the Board of Regents will meet either at the call of the Chair or at the request of any two members other than the Chair. Meetings may be held in person or via conference call.

B. Ad Hoc Committees

Designation

The Board, as a body, shall designate ad hoc committees as necessary.

Purpose

Each such ad hoc committee shall be responsible for in-depth consideration of assigned Board agenda items and/or special projects between scheduled meetings.

Membership

The Chair of the Board of Regents will appoint ad hoc committee members.

Meetings

Each ad hoc committee will meet either at the call of its Chair, or at the request of any two members other than the Chair of the committee. Meetings may be held in person or via conference call.

Article VII

General Procedures

A. Regular Meetings

(1) The Board will hold at least four (4) meetings in an annual period from October 1 to September 30, or as often as the Secretary of Defense or Chair of the Board shall deem necessary to conduct University business.

(2) Unless otherwise determined by the Board, meetings will be held in the Board of Regents conference room at the University, 4301 Jones Bridge Road, Bethesda, MD 20814.

B. Additional Meetings

(1) Additional meetings will be called by the Executive Secretary upon the direction of the Chair, the President of the University, or written request of three or more Regents.

(2) Additional meetings of the Board will be held at such times and places as will be specified in the notice of the meeting.

C. Notice of Meetings

(1) Notice of all meetings of the Board shall be sent by the Secretary to each Regent by mail, fax, electronic mail (e-mail), or telephone.

(2) The Secretary shall mail a notice not less than fifteen (15) days before any regular meeting. Faxing, e-mailing, or telephoning a notice shall be done not less than seven (7) days before a regular meeting.

(3) The recital by the Secretary in the minutes that notice was given shall be sufficient evidence of the fact.

(4) Public Announcement of the meetings of the full Board will appear in the Federal Register as provided in the Government in the Sunshine Act. (5 U.S.C. 552b(e)(3))

D. Quorum

A majority of all Members will constitute a quorum of the Board. As currently constituted, a quorum means at least eight (8) members must be present in person or via electronic means.

E. Voting

(1) During a meeting, if a quorum is called for by a member and found not to be present, no further business may be transacted.

(2) During a meeting, issues will be determined by voice balloting, unless an individual Member requires a written ballot.

(3) The Chair of the Board is a Member of the voting assembly and has the right to vote as any other Member when the vote is by ballot.

(4) Unless otherwise specified, a simple majority vote will determine matters of issue before the Board. In the event of a tie vote, the proposed resolution is lost.

(5) At the direction of the Chair, action may also be taken by a majority of the Members by notation voting (that is to say by voting on material circulated to the Members individually or serially, or by polling of Members individually or collectively by mail, telephone, fax, e-mail or similar procedure). Such action will be reported by the Secretary at the next Board Meeting.

(6) The Secretary of Defense, or the Secretary's designee, is authorized to vote.

(7) The Surgeons General of the Uniformed Services, or their duly appointed designees, are authorized to vote. The President/Dean of the University is precluded by DoD Directive 5105.45 from voting.

F. Order of Business

The order of business will be at the discretion of the Chair unless otherwise specified by the Board.

G. Rules of Order

In the determination of all questions of parliamentary usage, the decision of the Chair or presiding officer will be based upon the latest available revision of "Robert's Rules of Order."

Article VIII

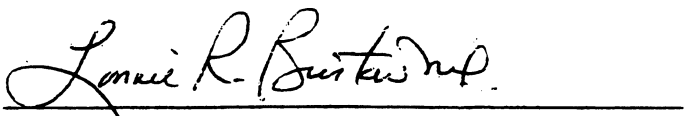
Amendment of Bylaws

A. Amendments

These Bylaws may be amended at any meeting of the Board of Regents as long as each proposed amendment has been provided to Members at least 60 days before the next scheduled meeting. Amendments will take effect by the affirmative vote of two-thirds (2/3) of the Members present.

Effective Date:

These Bylaws are effective February 6, 2001.



Lonnie R. Bristow, M.D., Chair, Board of Regents

CHARTER

THE EXECUTIVE COMMITTEE OF THE UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

A. Official Designation: The committee shall be known as the Executive Committee of the Uniformed Services University of the Health Sciences. The committee shall be governed by the provisions of Department of Defense Directive 5105.18, "DoD Committee Management Program," February 8, 1999.

B. Objective and Scope of Activity: To provide for the management and supervision of the Uniformed Services University of the Health Sciences. To assure that the operation of the University is in compliance with appropriate Department of Defense Directives, Instructions and Regulations. To ensure the President of the University shall have execution authority direction and control of USUHS and report to the Executive Committee. To facilitate accomplishment of the function's of the ASD(HA), the Surgeons General, and the Executive Agent as described in DoD Directive 5105.45, "Uniformed Services University of the Health Sciences."

C. Period of Time Required: This Committee is established pursuant to Program Budget Decision 711 of December 17, 1997 and will exist until rescinded by the Secretary of Defense.

D. Official of Sponsoring Proponent to Whom the Board Reports: Assistant Secretary of Defense (Health Affairs).

E. Duties and Responsibilities:

1. The business of the University shall be conducted under the management and supervision of the Executive Committee with Defense Health Program and other funds appropriated for and provided by the Department of Defense through the Department of the Navy as the Executive Agent.

2. The Executive Committee shall consist of the Surgeons General of the Military Services. The membership will determine the Chair.

3. The Executive Committee will be guided by the advice of the USUHS Board of Regents on academic affairs.

4. The Executive Committee will oversee matters involving programming, budgeting and funding execution. In this regard, budgets approved by the Executive Committee will be presented by the Executive Agent to the Defense Health Program as a part of its responsibility for the planning, programming and budgeting execution system of the USUHS.

F. Signature Authority: The Chair has authority to transmit decisions upon which the Executive Committee has reached unanimity. In the absence of a member of the Executive Committee, the representative of a Surgeon General is authorized to participate in the decision-making process.

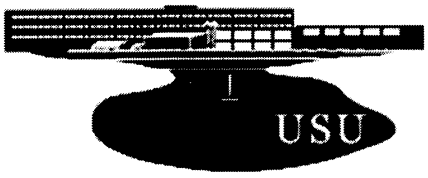
G. Number of Meetings: The Executive Committee shall meet at the call of the Chair but not less than quarterly.

Charter Approved, December 18, 2000:

VADM Richard A. Nelson
Surgeon General of the Navy
Chair

LtGen Paul K. Carlton Jr.
Surgeon General of the Air Force
Member

LTG James B. Peake
Surgeon General of the Army
Member



Strategic Plan

A Message from the President

The University Strategic Plan has become the core document with which the University is formulating its future. In accordance with good management practices, we have aligned our plan with the Department of Defense Medical Health System (MHS) Business Plan.

In April 2001, the University senior staff, teaching hospital representatives, Chair of the Board of Regents, and representatives of the Surgeons General held a very productive three-day retreat to review our strategic plan. We examined our strengths, weaknesses, opportunities, and threats. As a result, we identified seven new goals and over forty objectives, of which 28 were selected to be worked on in FY 2002. Since last year, over 200 people have been working on these objectives to meet our mission of "Learning to care for those in harm's way."

I believe that a useful plan is always a work-in-progress. We will constantly refer to the strategic plan as our beacon, but will adjust a few points of the compass as the University deals with the changing environment.

I invite you to read this plan, coming back occassionally as new objectives and strategies are added. Please feel free to share your thoughtful comments.

This is our strategic plan to guide the University in the 21st century. This strategic plan has no value if it is filed or posted and ignored; it becomes an effective and dynamic plan directed towards the University's vision when we are all involved in its creation and maintenance. Your input is important, welcomed, and appreciated.

James A. Zimble, M.D.
President

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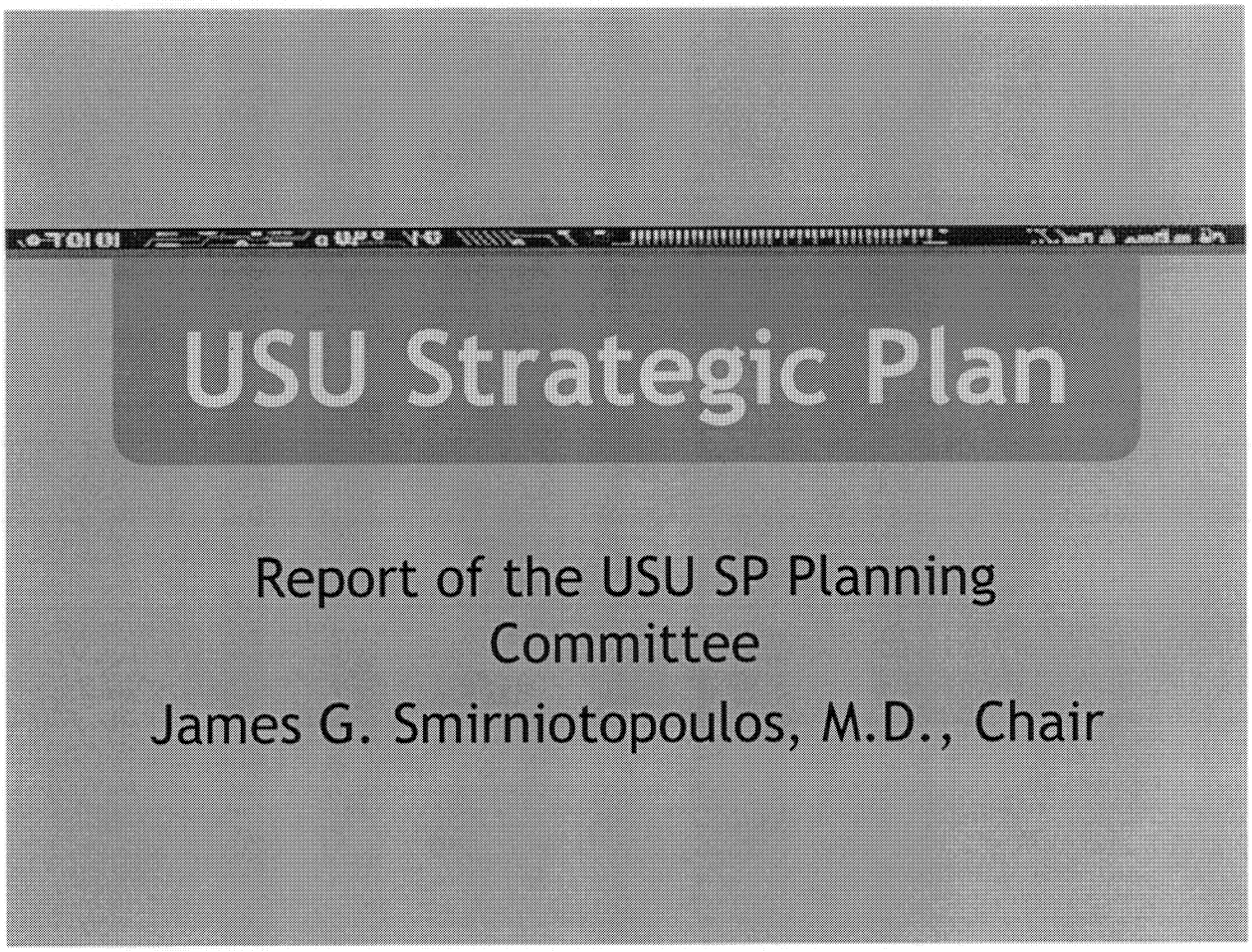
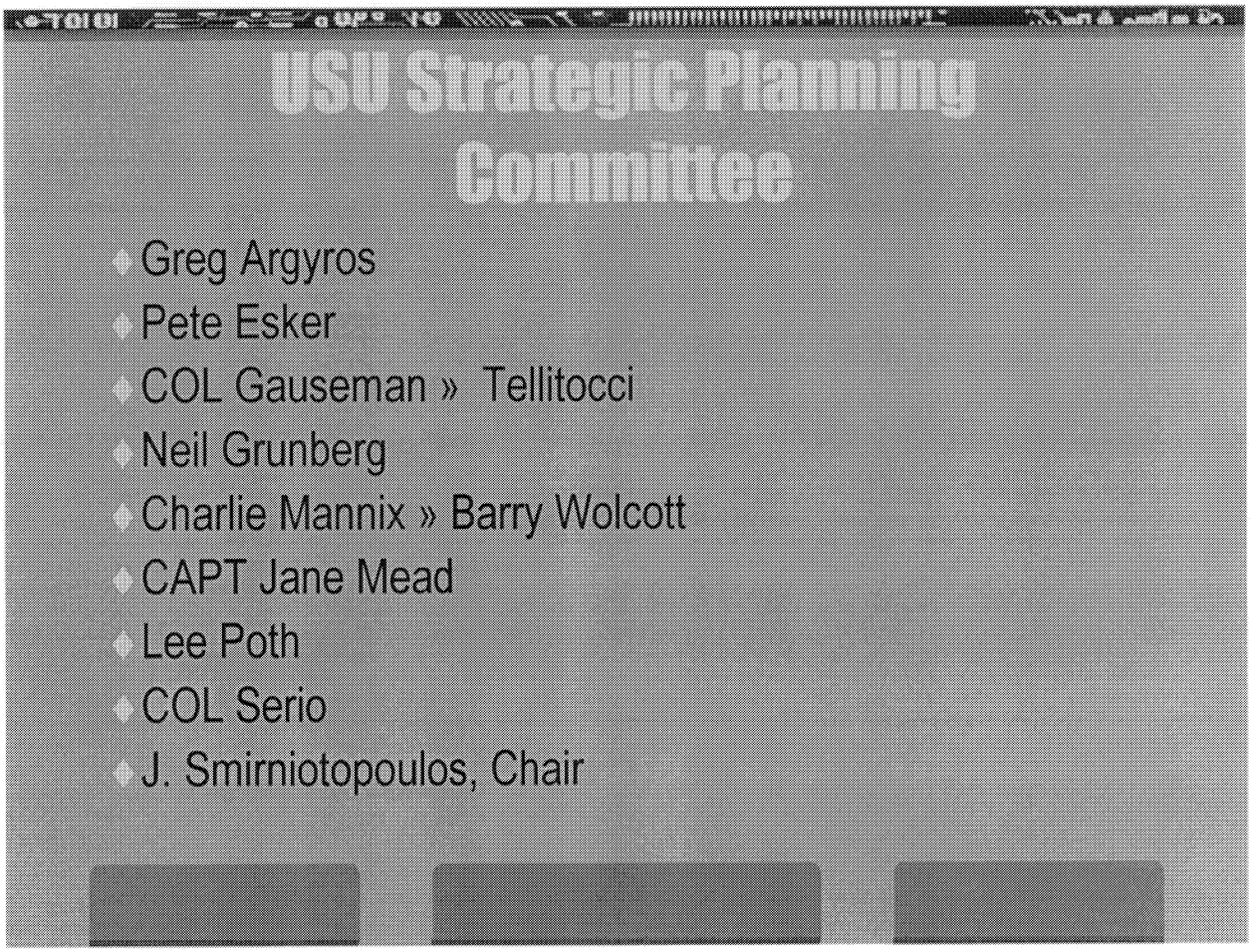
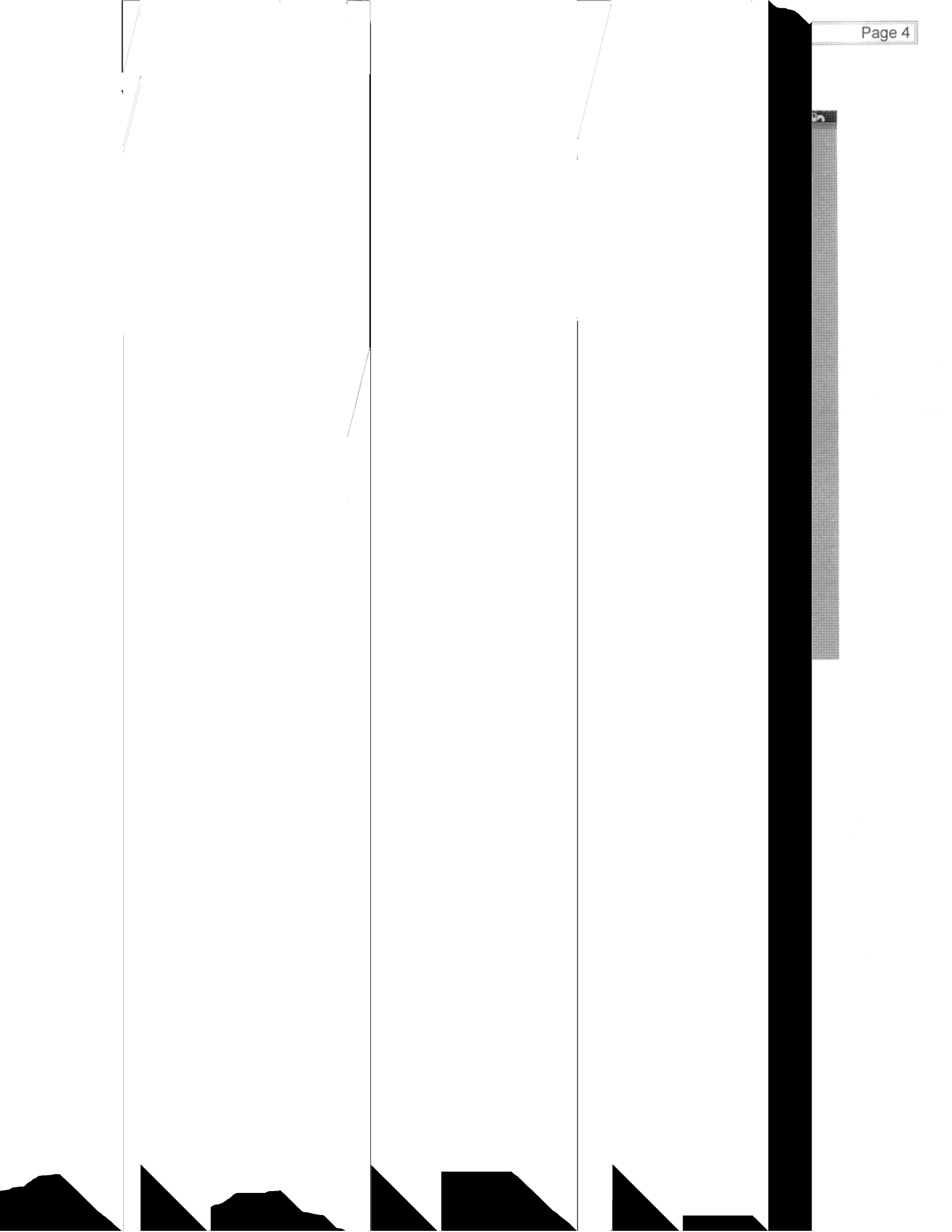
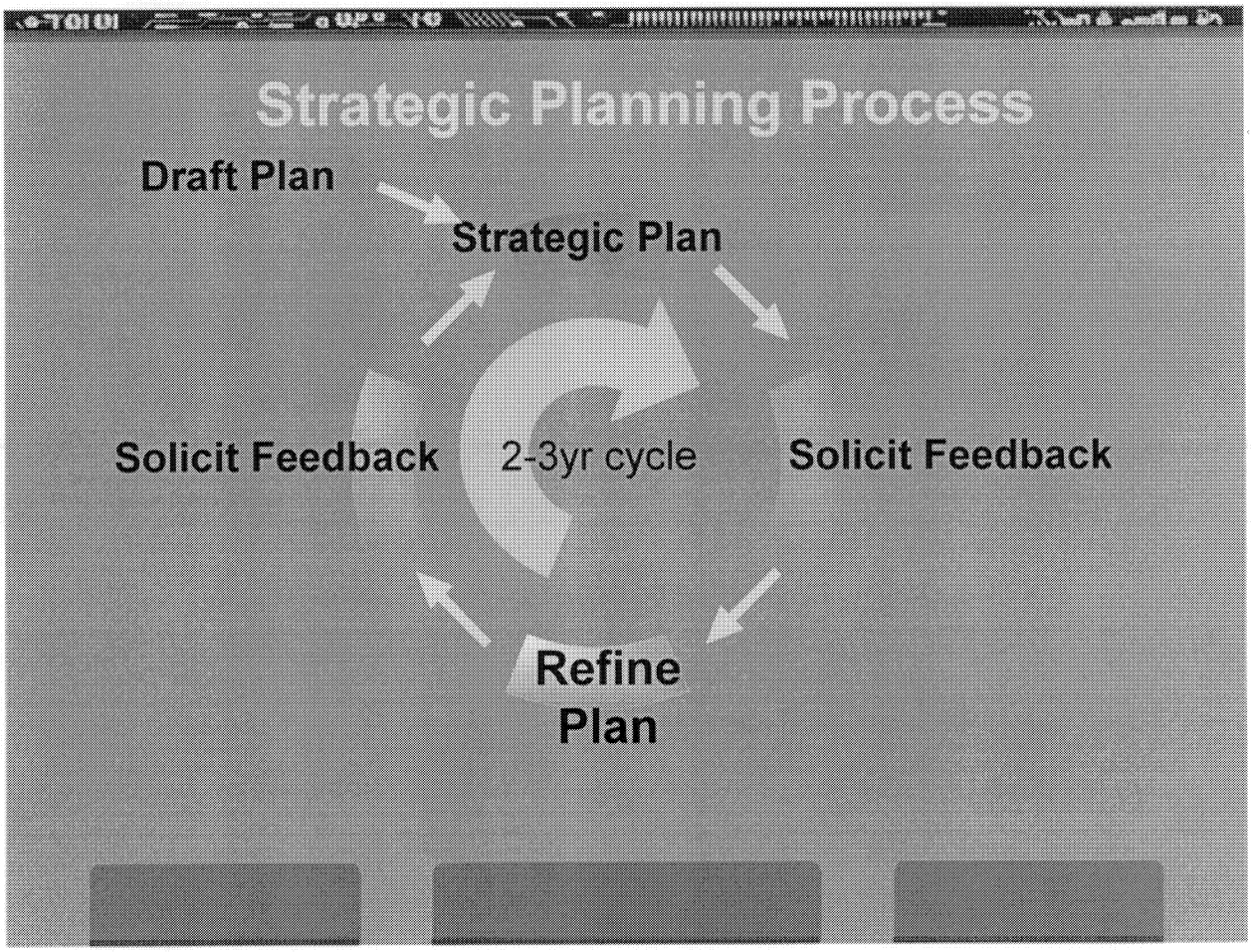
Contact our webmaster at: webmaster@usuhs.mil
Last update: 04/02/04

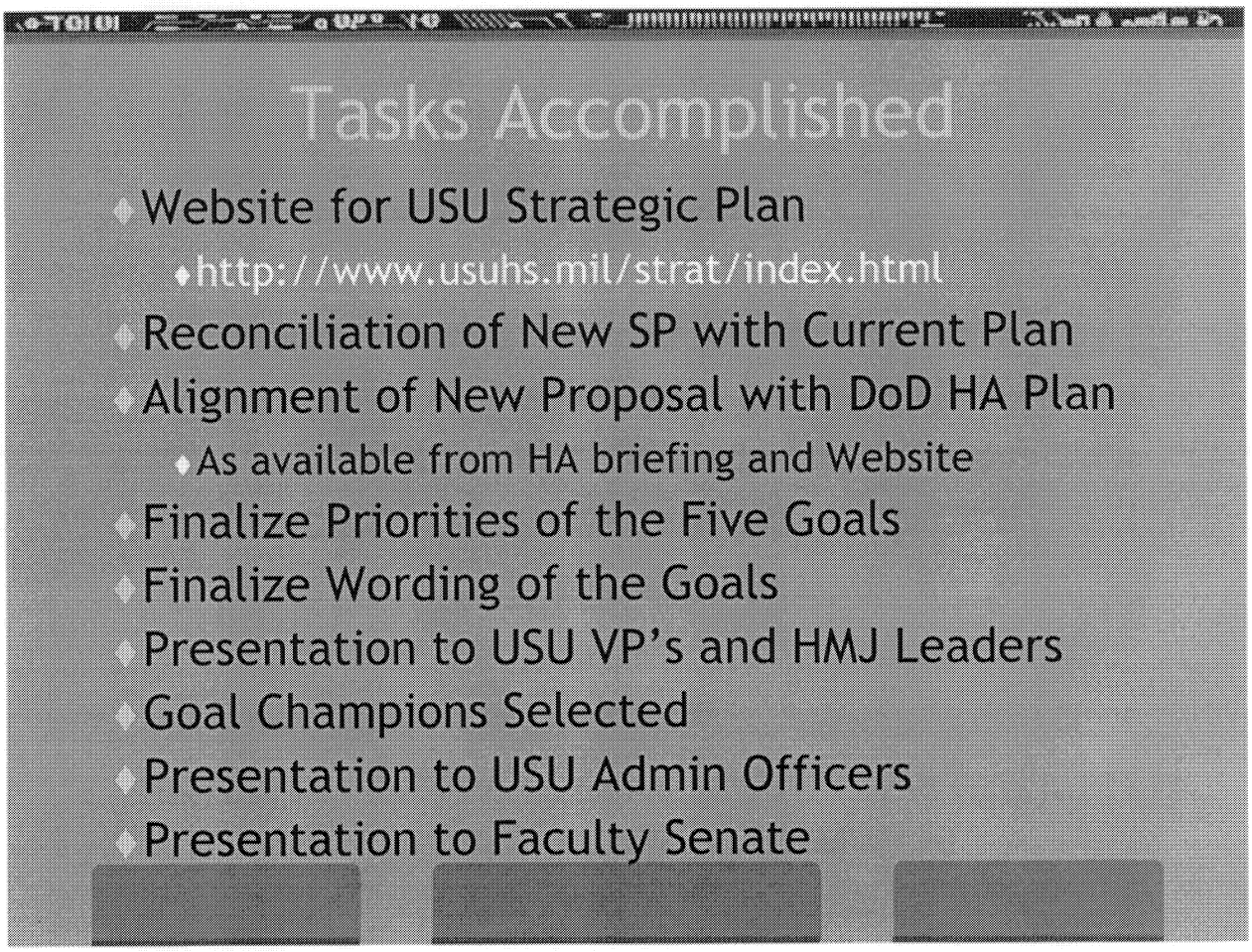

USU Strategic Plan
Report of the USU SP Planning Committee
James G. Smirniotopoulos, M.D., Chair

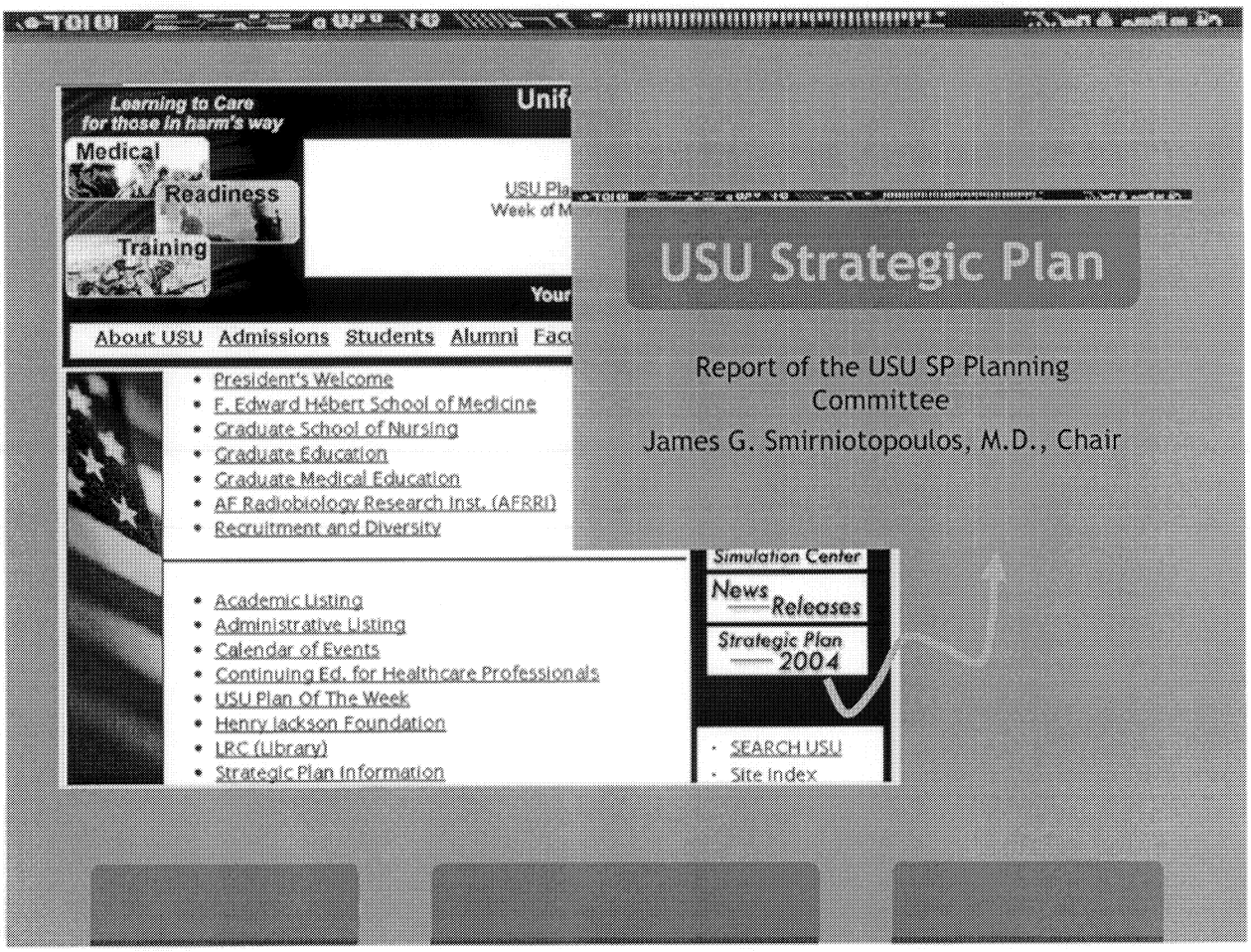

USU Strategic Planning Committee
Greg Argyros
Pete Esker
COL Gauseman » Tellitocci
Neil Grunberg
Charlie Mannix » Barry Wolcott
CAPT Jane Mead
Lee Poth
COL Serio
J. Smirniotopoulos, Chair

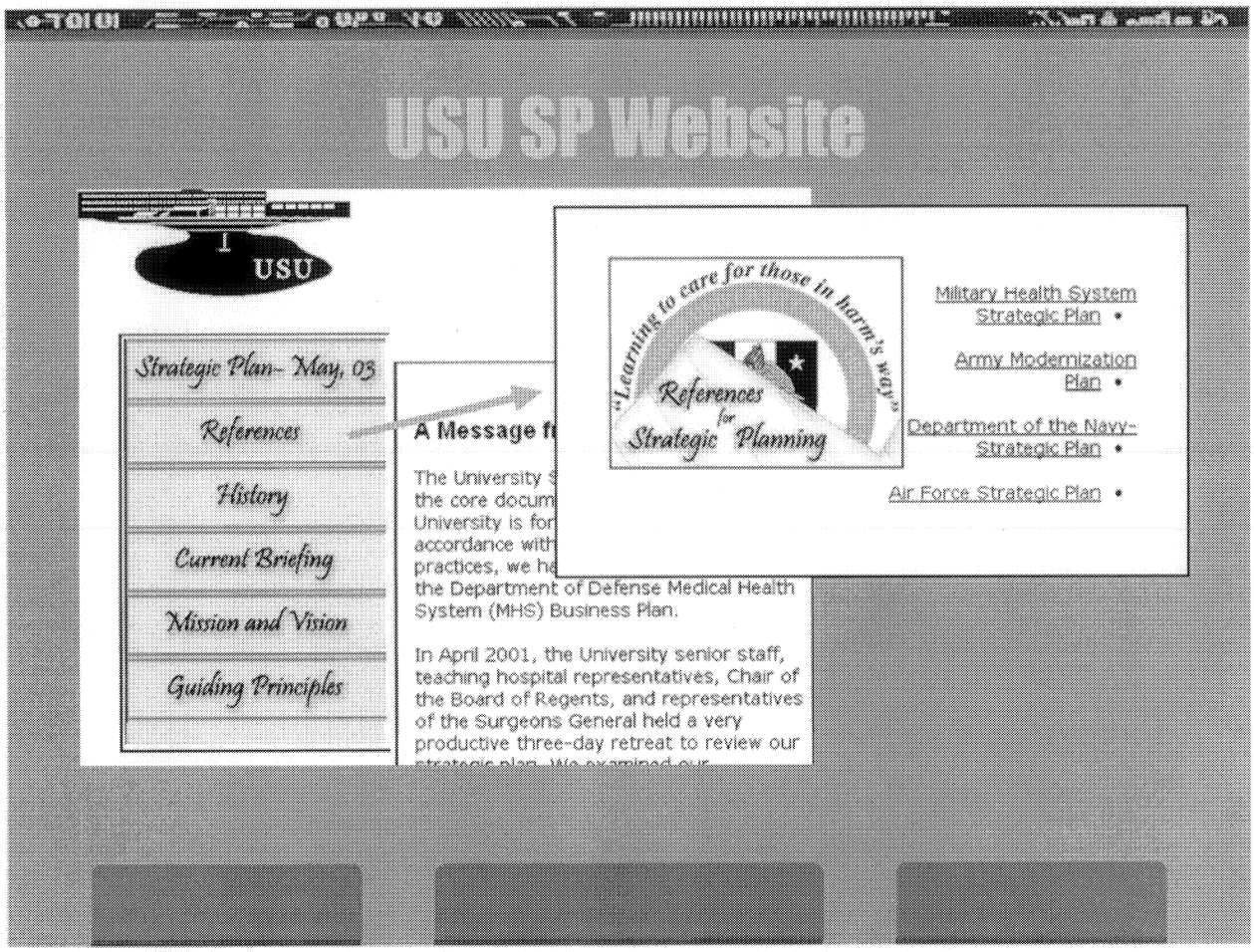

"Because
we've always
done it that
way"

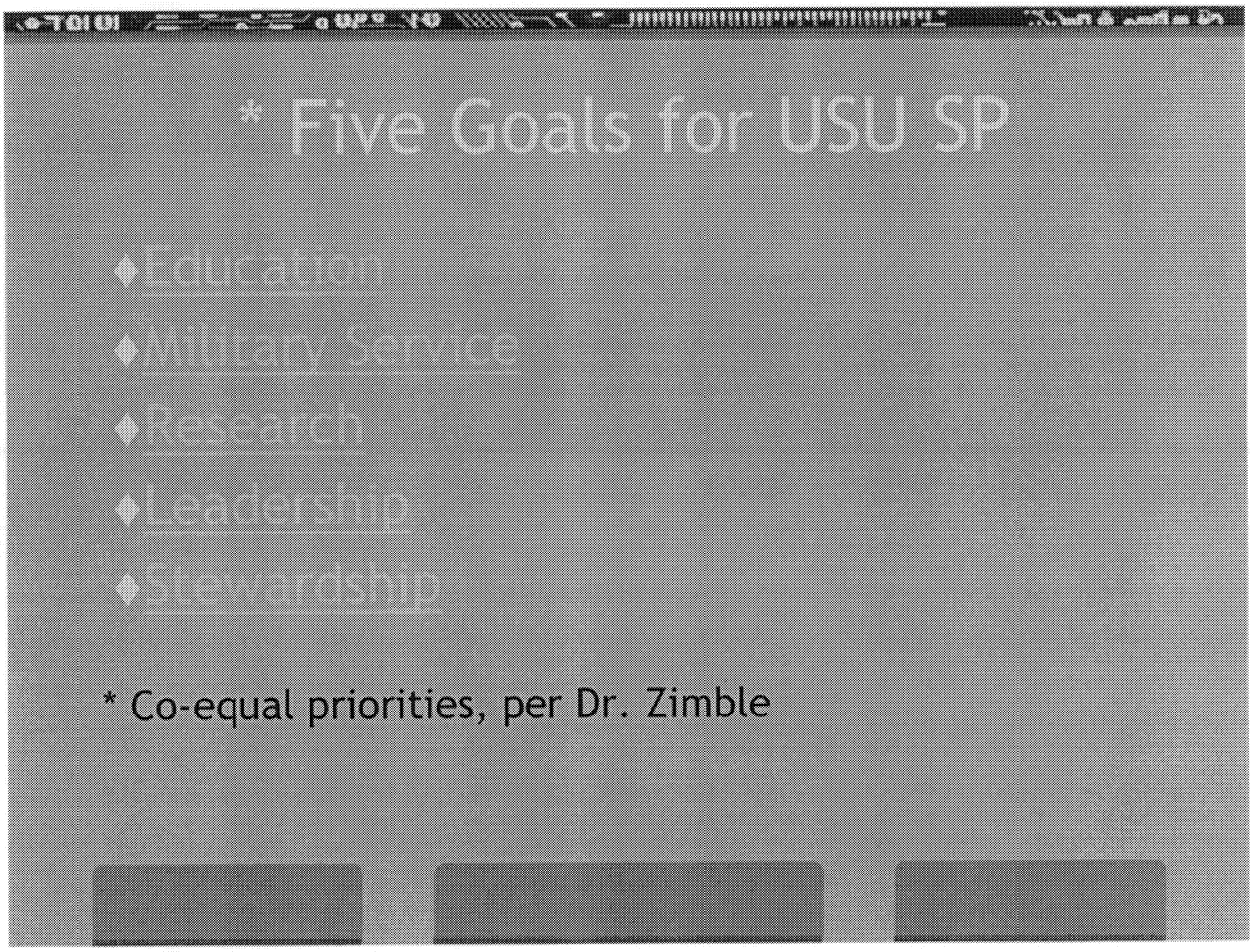


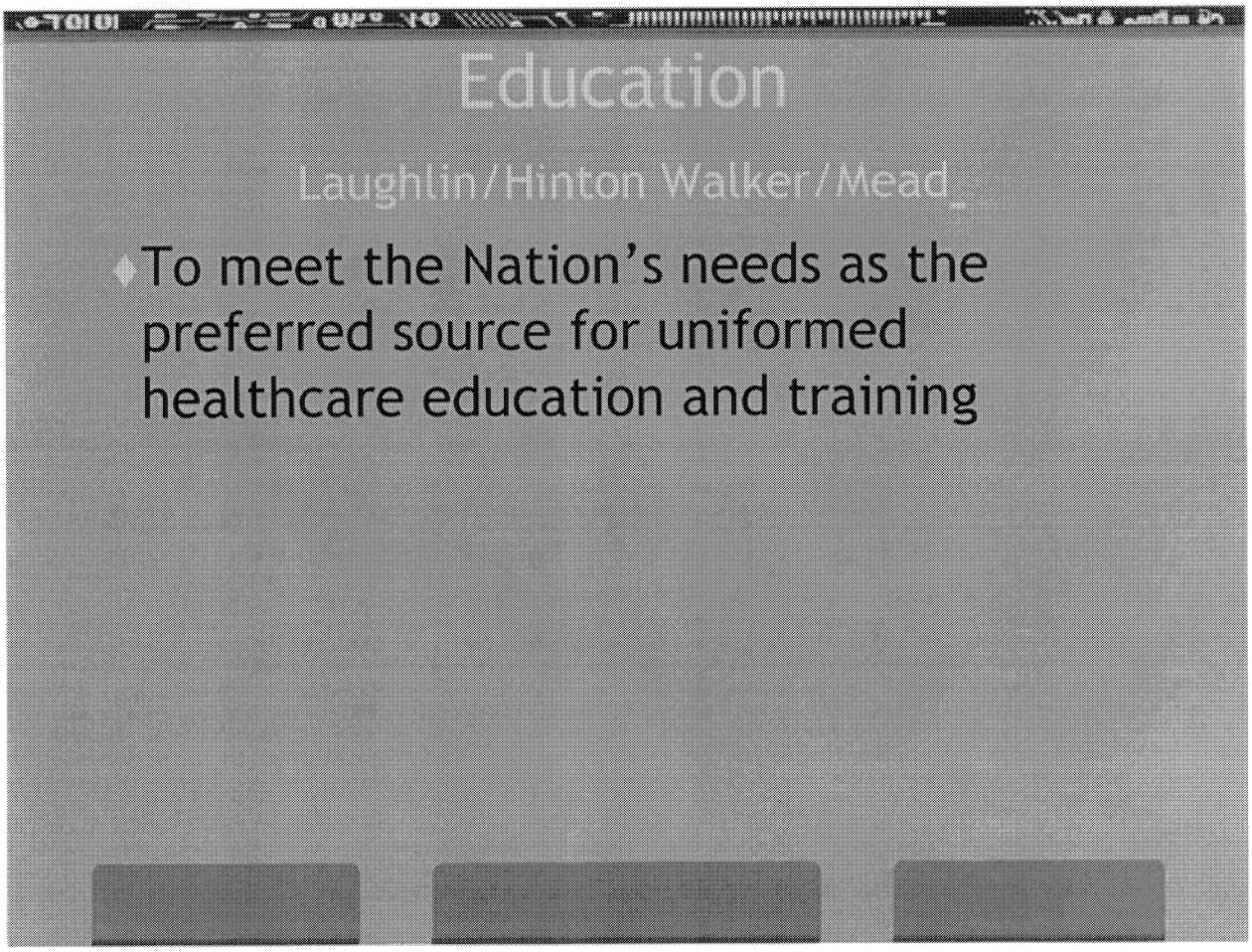

Strategic Planning Process
Draft Plan
Strategic Plan
Solicit Feedback
2-3yr cycle
Solicit Feedback
Refine
Plan


Tasks Accomplished
Website for USU Strategic Plan
http://www.usuhs.mil/strat/index.html
Reconciliation of New SP with Current Plan
Alignment of New Proposal with DoD HA Plan
As available from HA briefing and Website
Finalize Priorities of the Five Goals
Finalize Wording of the Goals
Presentation to USU VP's and HMJ Leaders
Goal Champions Selected
Presentation to USU Admin Officers
Presentation to Faculty Senate


Learning to Care
for those in harm's way
Medical
Readiness
Training
About USU Admissions Students Alumni
President's Welcome
F. Edward Hébert School of Medicine
Graduate School of Nursing
Graduate Education
Graduate Medical Education
AF Radiobiology Research Inst. (AFRRI)
Recruitment and Diversity
Academic Listing
Administrative Listing
Calendar of Events
Continuing Ed. for Healthcare Professionals
USU Plan Of The Week
Henry Jackson Foundation
LRC (Library)
Strategic Plan Information
Simulation Center
News Releases
Strategic Plan 2004
SEARCH USU
Site Index
USU Strategic Plan
Report of the USU SP Planning Committee
James G. Smirniotopoulos, M.D., Chair

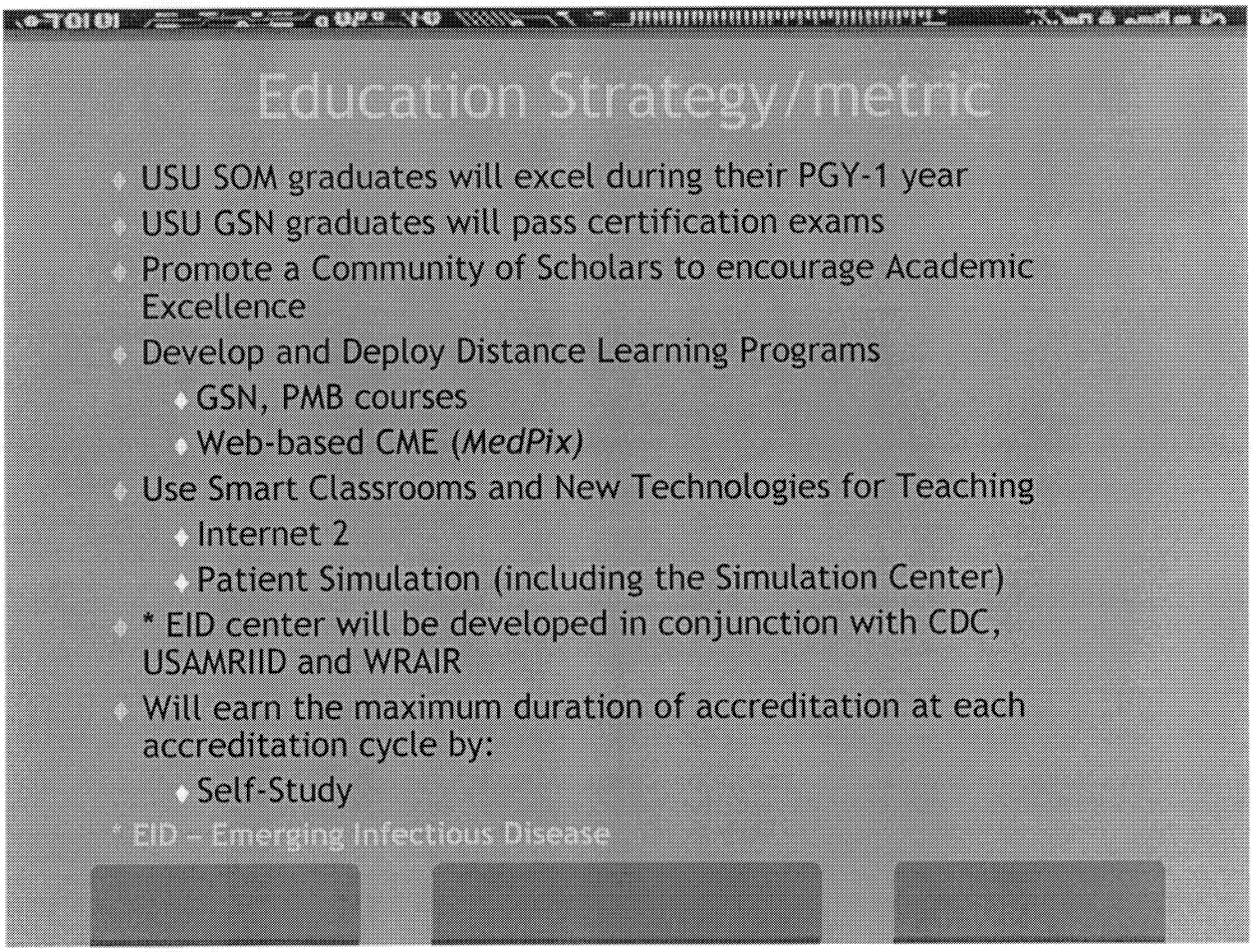

USU SP Website
USU
Strategic Plan- May, 03
References
History
Current Briefing
Mission and Vision
Guiding Principles
A Message f
The University S
the core docum
University is for
accordance with
practices, we h
the Department of Defense Medical Health System (MHS) Business Plan.
In April 2001, the University senior staff, teaching hospital representatives, Chair of the Board of Regents, and representatives of the Surgeons General held a very productive three-day retreat to review our
"Learning to care for those in harm's way"
References for Strategic Planning
Military Health System Strategic Plan •
Army Modernization Plan •
Department of the Navy- Strategic Plan •
Air Force Strategic Plan •

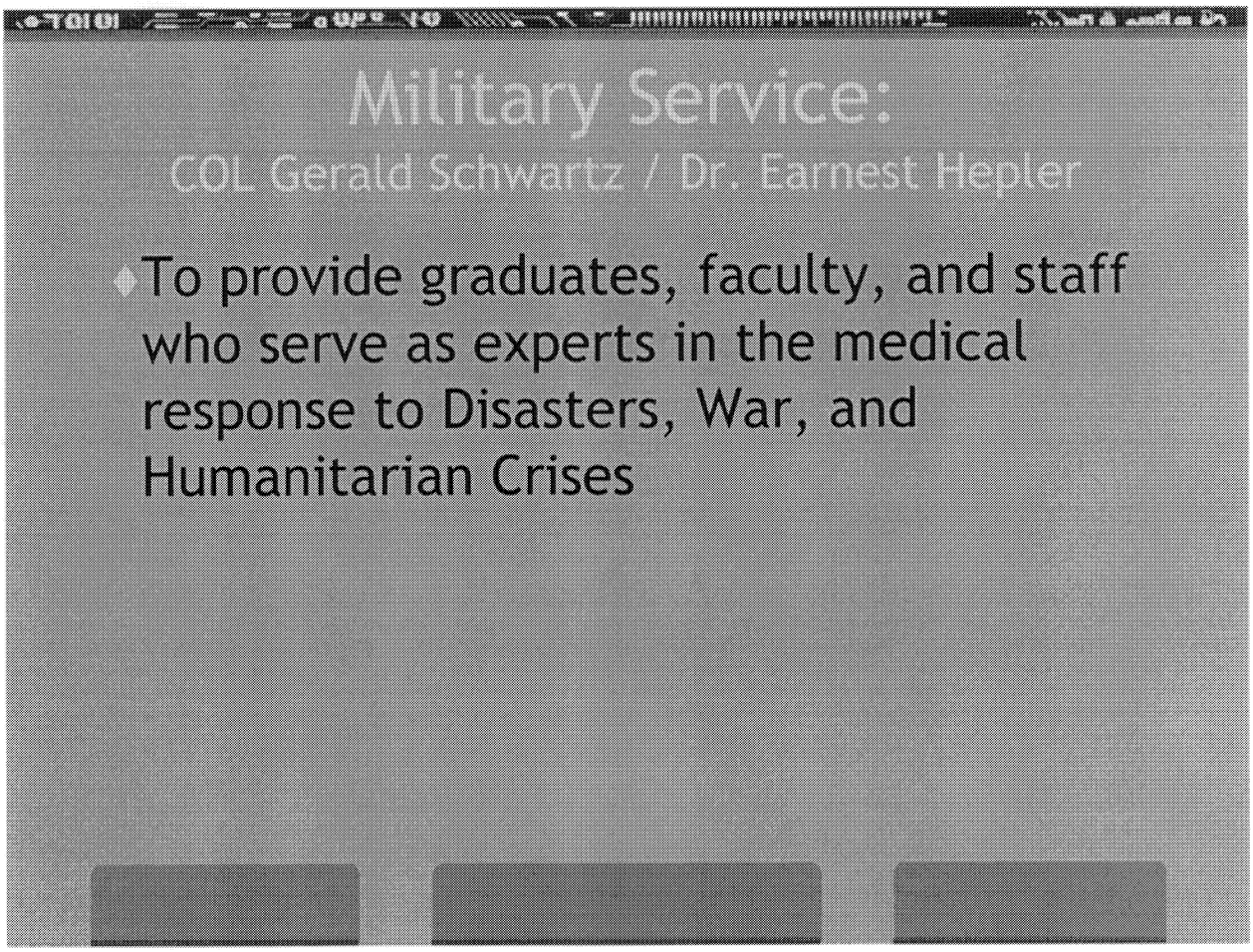

* Five Goals for USU SP
Education
Military Service
Research
Leadership
Stewardship
* Co-equal priorities, per Dr. Zimble

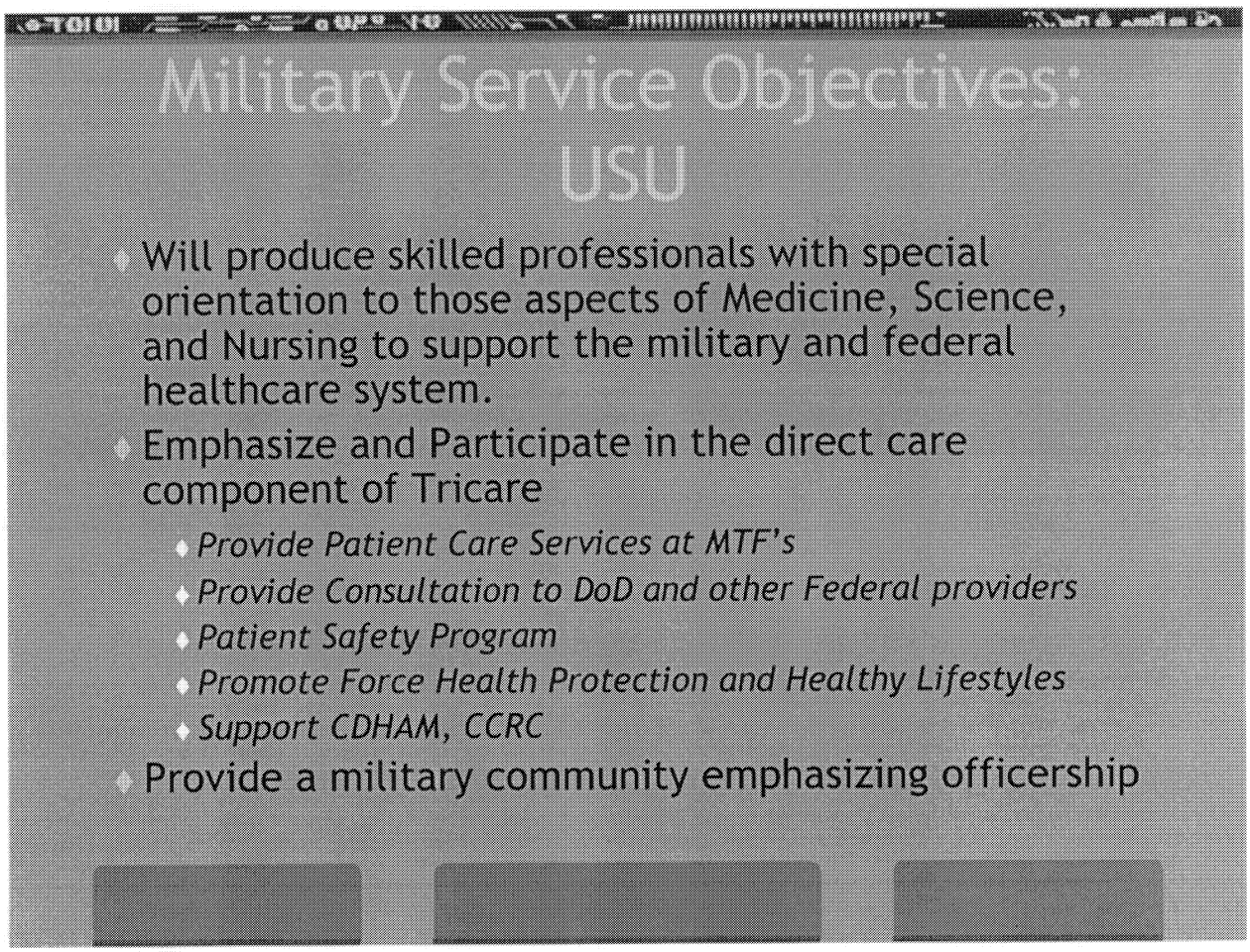

Education
Laughlin/Hinton Walker/Mead
To meet the Nation's needs as the preferred source for uniformed healthcare education and training

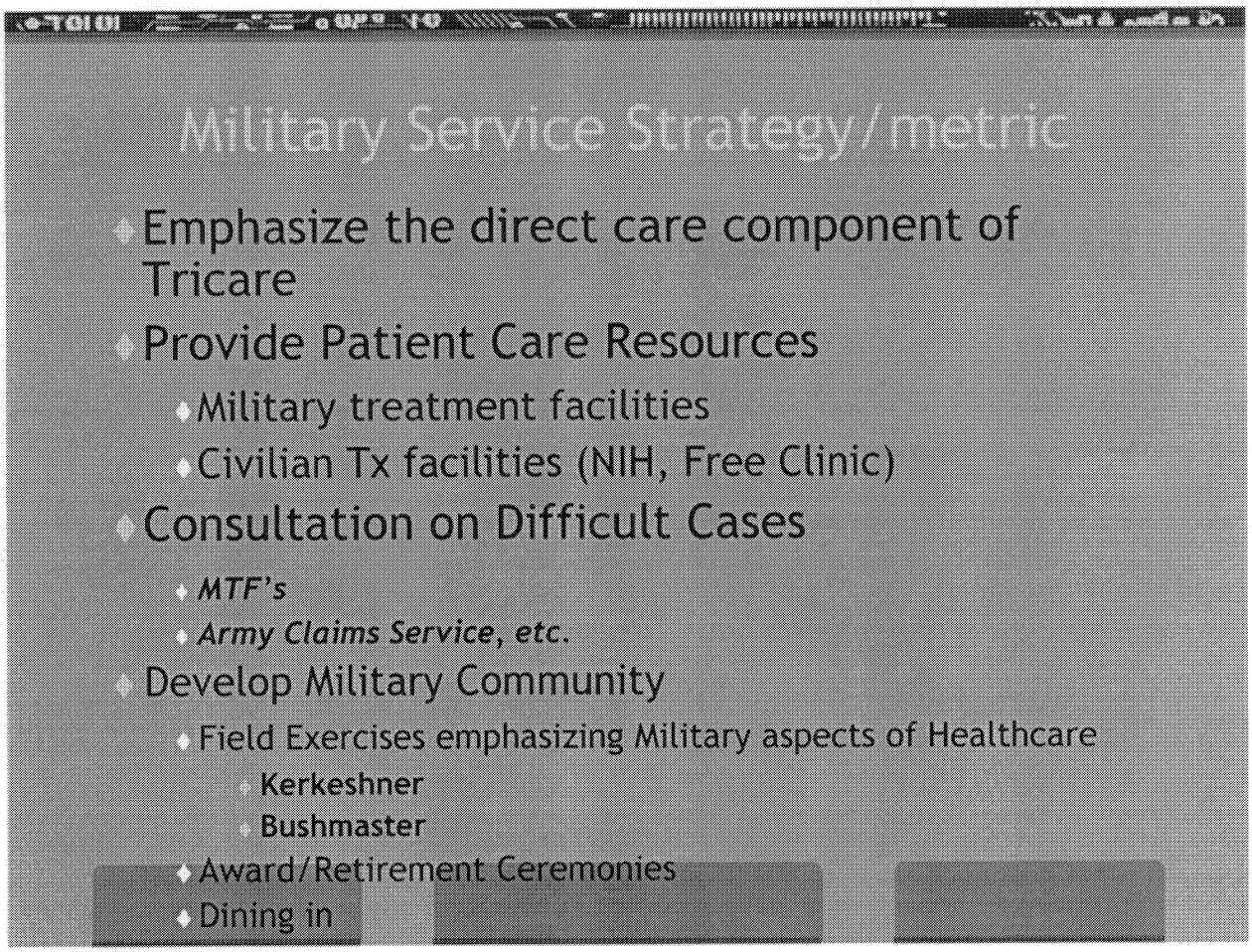
Education Objectives: USU

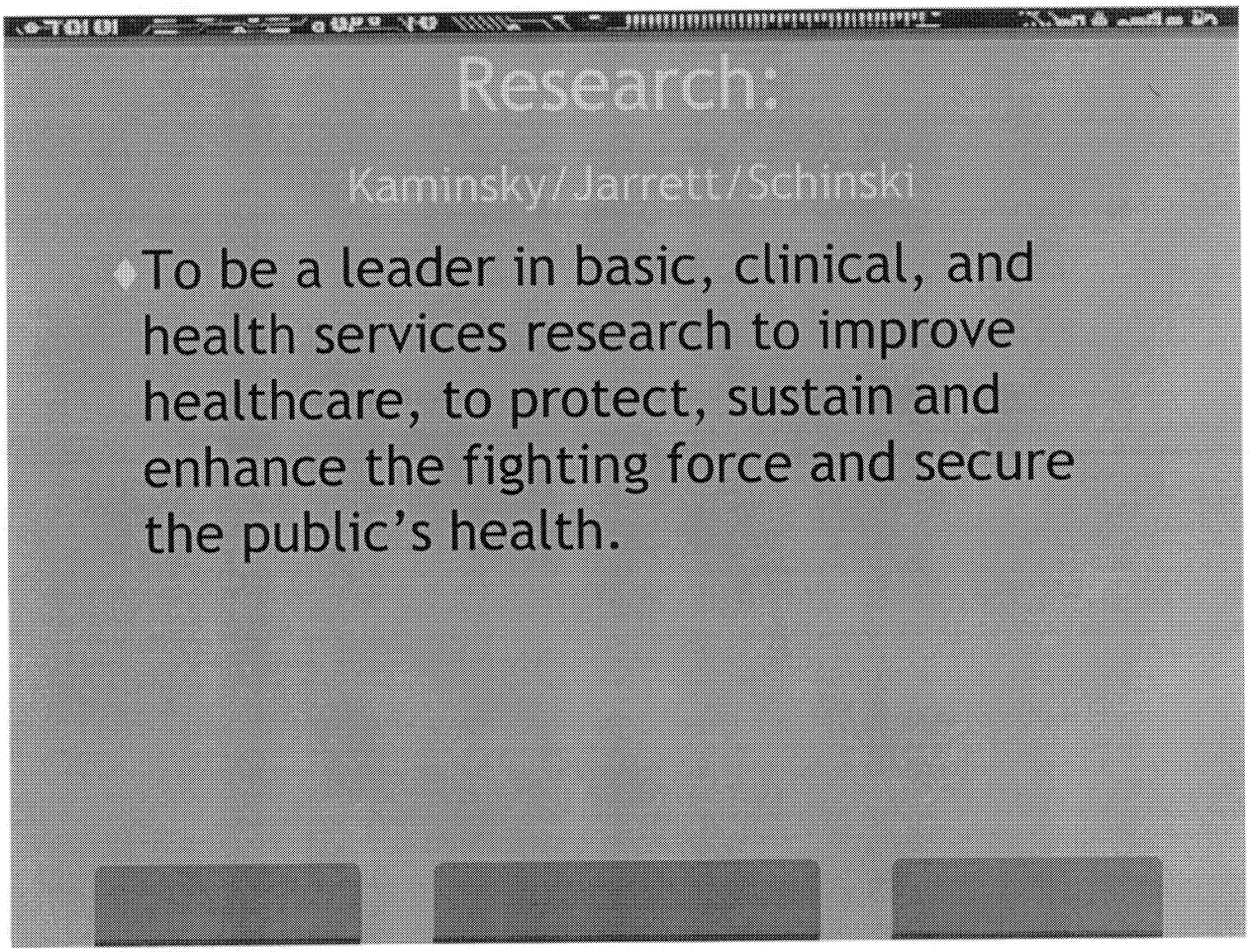
- Will provide outstanding education to our students, focused on Military Readiness and Homeland Defense.
- Will develop and deploy Continuing Health Education and distance learning programs to enhance the competency of Military Healthcare professionals in the Military Unique Curriculum.
- Will coordinate with other agencies to develop and conduct specialized training for health care professionals in:
  - *Disaster and Humanitarian Relief*
  - *Weapons of mass destruction*
  - *Traumatic and Post-traumatic stress*
  - *Preventive Medicine for mission readiness*
  - *Force Health Protection and Healthy Lifestyles*
- Will establish a center for "smart classrooms" taking advantage of new technologies for teaching
- All programs will meet or exceed national standards for accreditation.
- Will partner with senior service colleges to create a School of Leadership and Professional Development.


Education Strategy/metric
USU SOM graduates will excel during their PGY-1 year
USU GSN graduates will pass certification exams
Promote a Community of Scholars to encourage Academic Excellence
Develop and Deploy Distance Learning Programs
GSN, PMB courses
Web-based CME (MedPix)
Use Smart Classrooms and New Technologies for Teaching
Internet 2
Patient Simulation (including the Simulation Center)
* EID center will be developed in conjunction with CDC, USAMRIID and WRAIR
Will earn the maximum duration of accreditation at each accreditation cycle by:
Self-Study
* EID – Emerging Infectious Disease

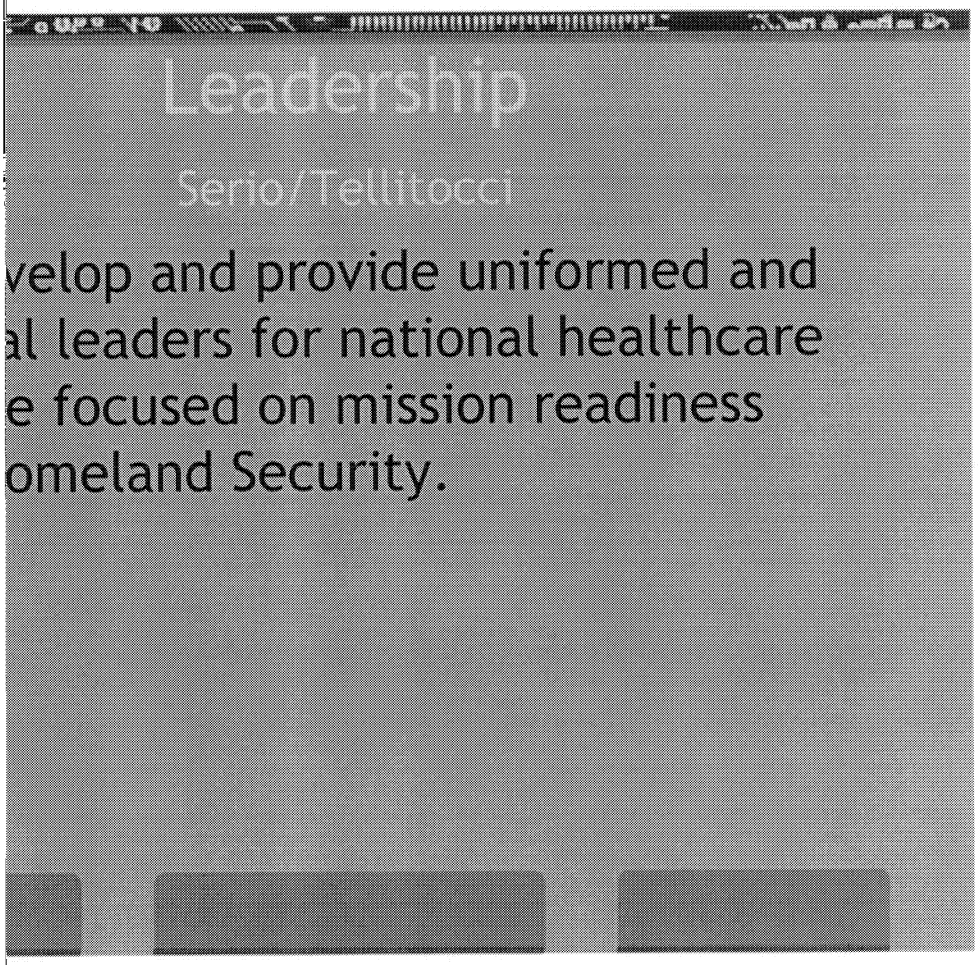

Military Service:
COL Gerald Schwartz / Dr. Earnest Hepler
To provide graduates, faculty, and staff who serve as experts in the medical response to Disasters, War, and Humanitarian Crises

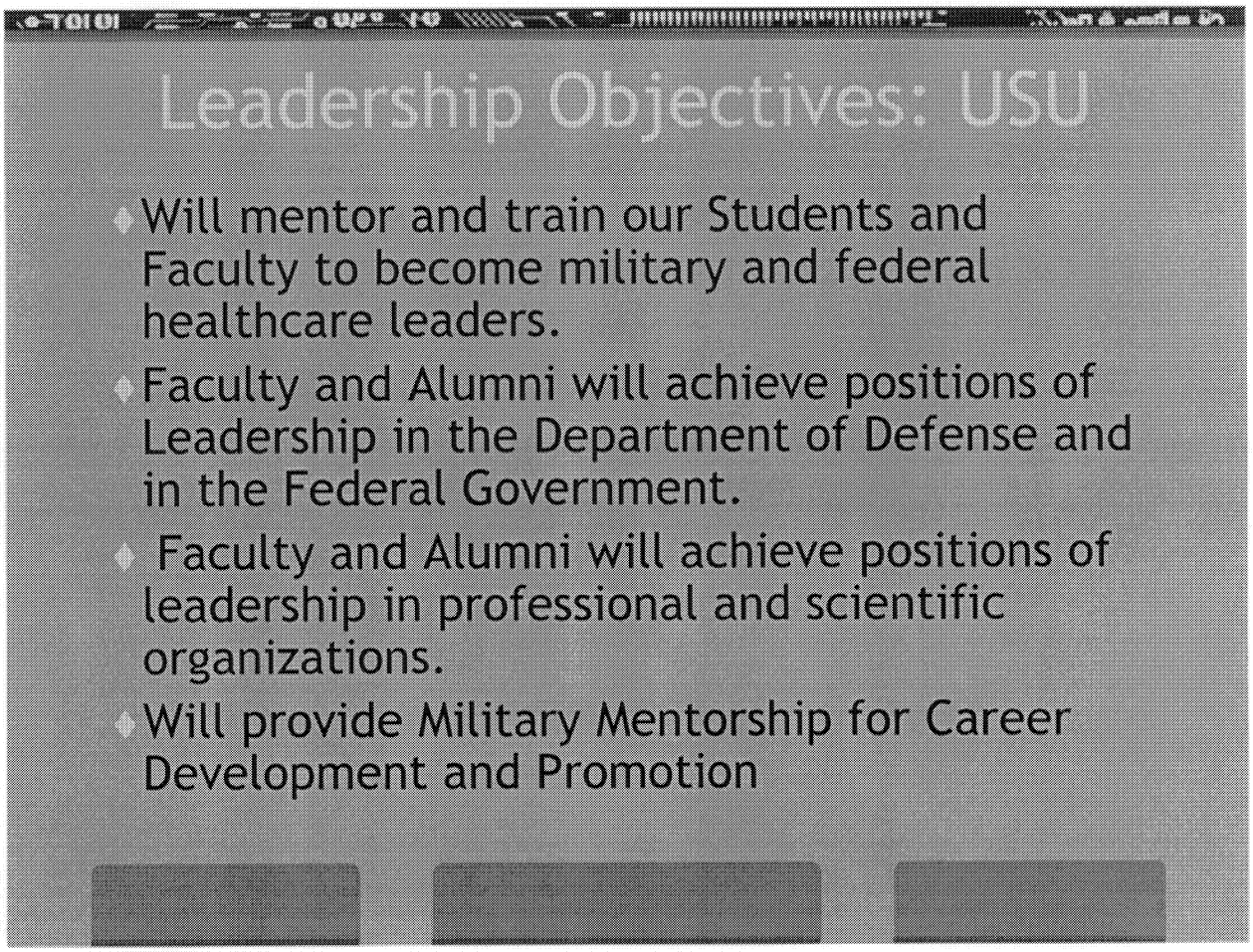

Military Service Objectives: USU
Will produce skilled professionals with special orientation to those aspects of Medicine, Science, and Nursing to support the military and federal healthcare system.
Emphasize and Participate in the direct care component of Tricare
Provide Patient Care Services at MTF's
Provide Consultation to DoD and other Federal providers
Patient Safety Program
Promote Force Health Protection and Healthy Lifestyles
Support CDHAM, CCRC
Provide a military community emphasizing officership

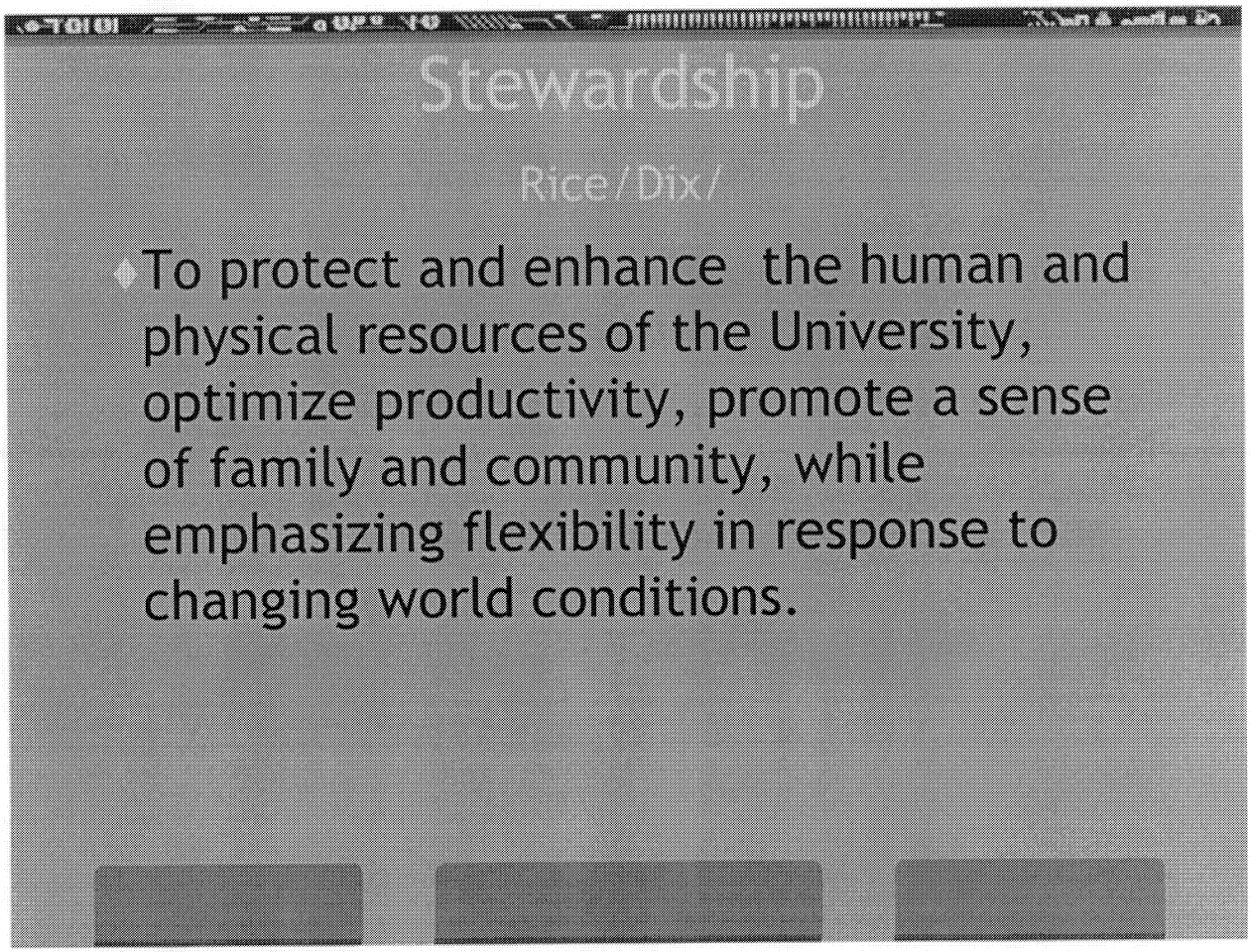

Military Service Strategy/metric
Emphasize the direct care component of Tricare
Provide Patient Care Resources
Military treatment facilities
Civilian Tx facilities (NIH, Free Clinic)
Consultation on Difficult Cases
MTF's
Army Claims Service, etc.
Develop Military Community
Field Exercises emphasizing Military aspects of Healthcare
Kerkeshner
Bushmaster
Award/Retirement Ceremonies
Dining in

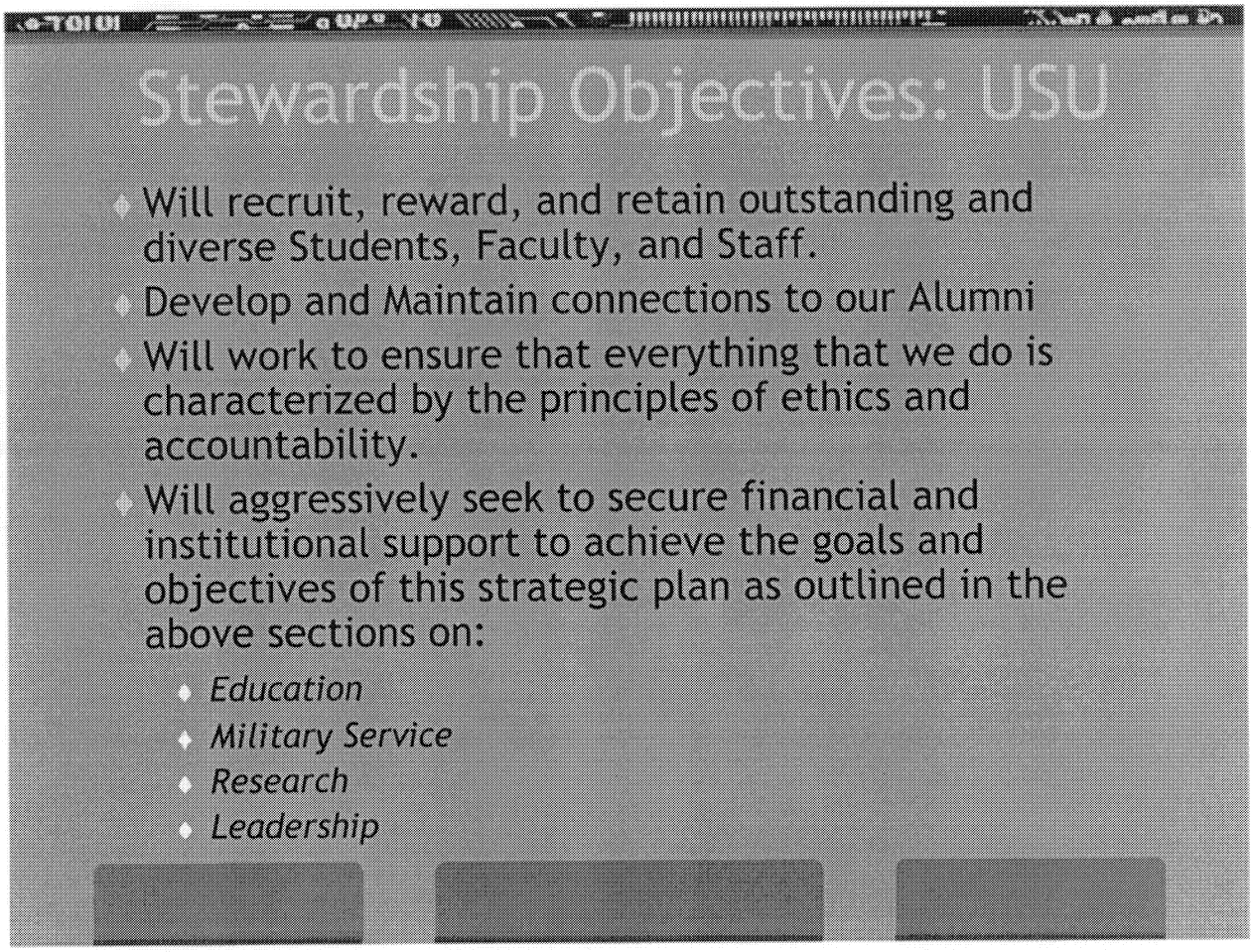

Research:
Kaminsky/Jarrett/Schinski
To be a leader in basic, clinical, and health services research to improve healthcare, to protect, sustain and enhance the fighting force and secure the public's health.

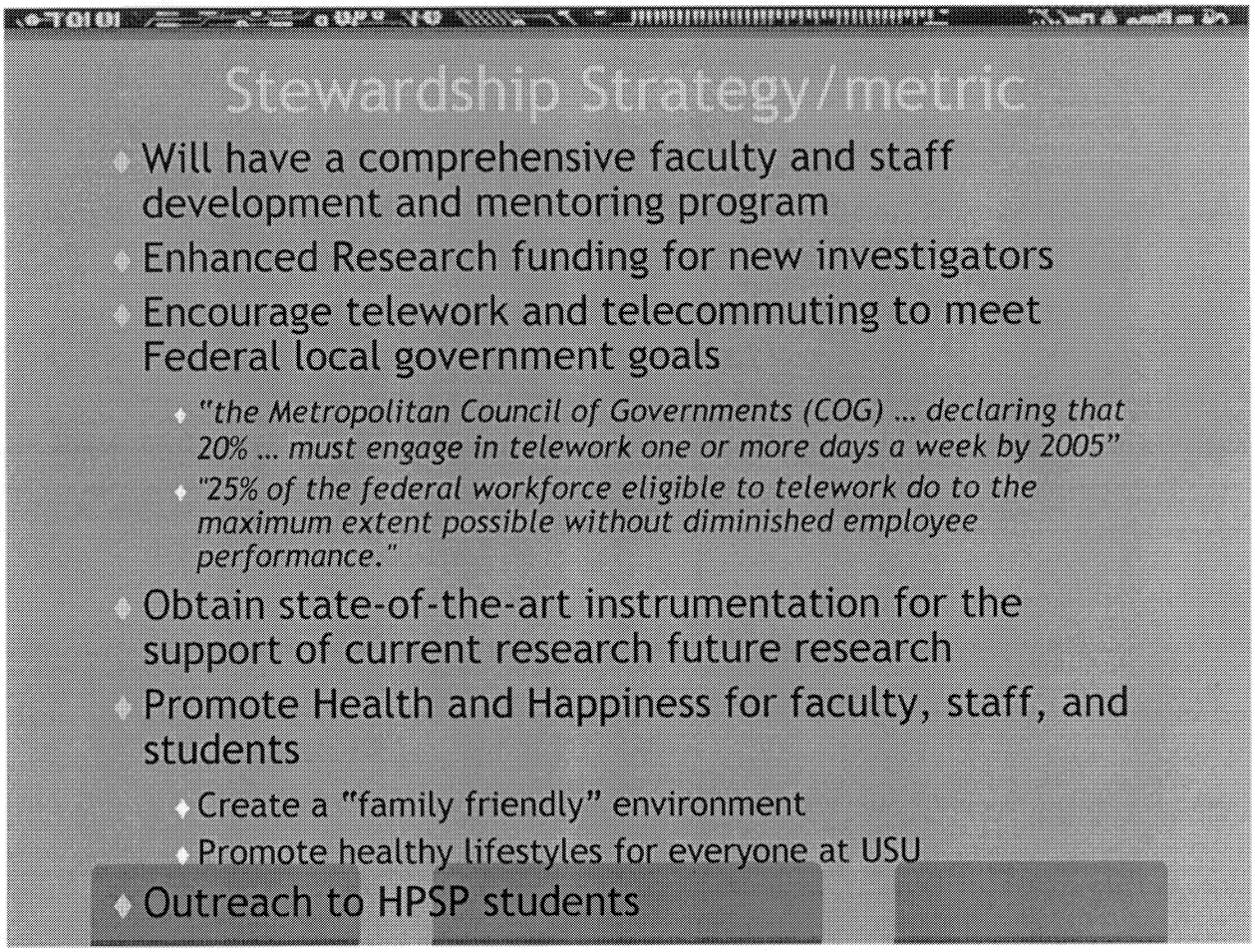

Research Objectives: USU
• Will emphasize Research and Development relevant to military, federal, and homeland security needs.
• Will develop interdisciplinary programs focused on outcomes research.
• Will develop programs for Pedagogical research.
• Will develop a repository for collecting and analyzing combat casualty data.
• Will emphasize research objectives established by service and Joint Service medical requirement documents.
• Will ensure regulatory compliance in all aspects of healthcare and basic science research.
• Will develop Institutional Research for self study

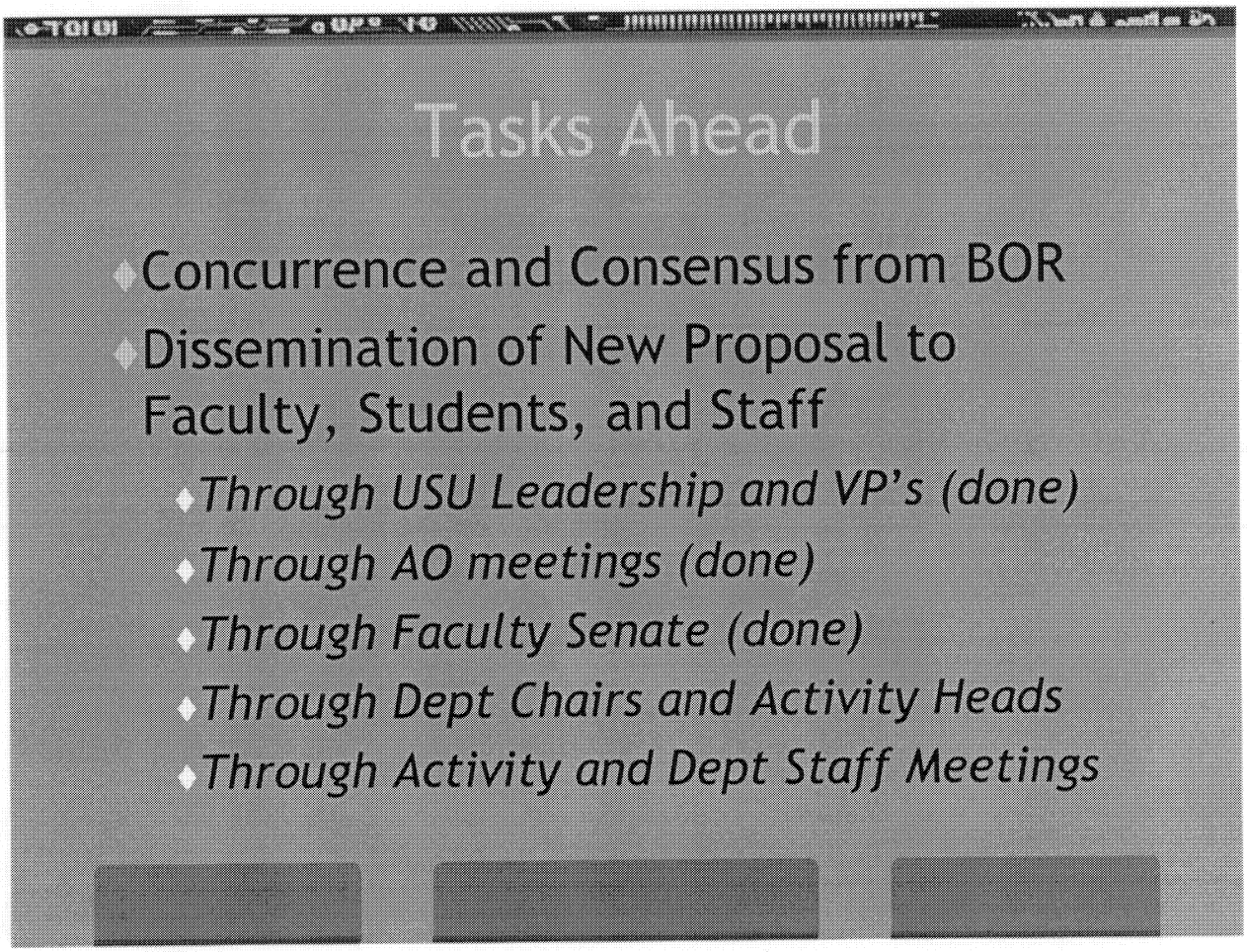

Leadership
Serio/Tellitocci
velop and provide uniformed and
al leaders for national healthcare
e focused on mission readiness
omeland Security.

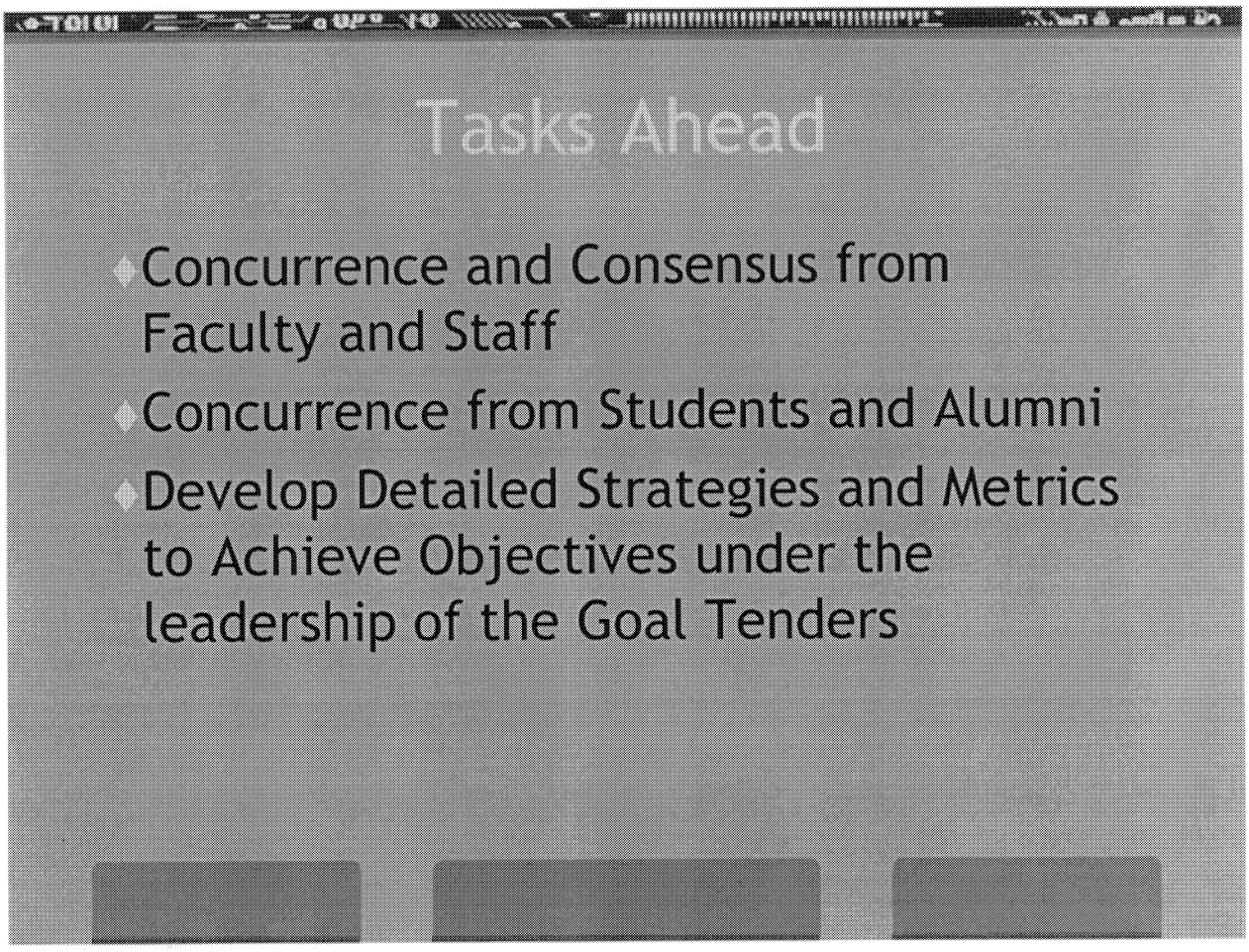

Leadership Objectives: USU
Will mentor and train our Students and Faculty to become military and federal healthcare leaders.
Faculty and Alumni will achieve positions of Leadership in the Department of Defense and in the Federal Government.
Faculty and Alumni will achieve positions of leadership in professional and scientific organizations.
Will provide Military Mentorship for Career Development and Promotion

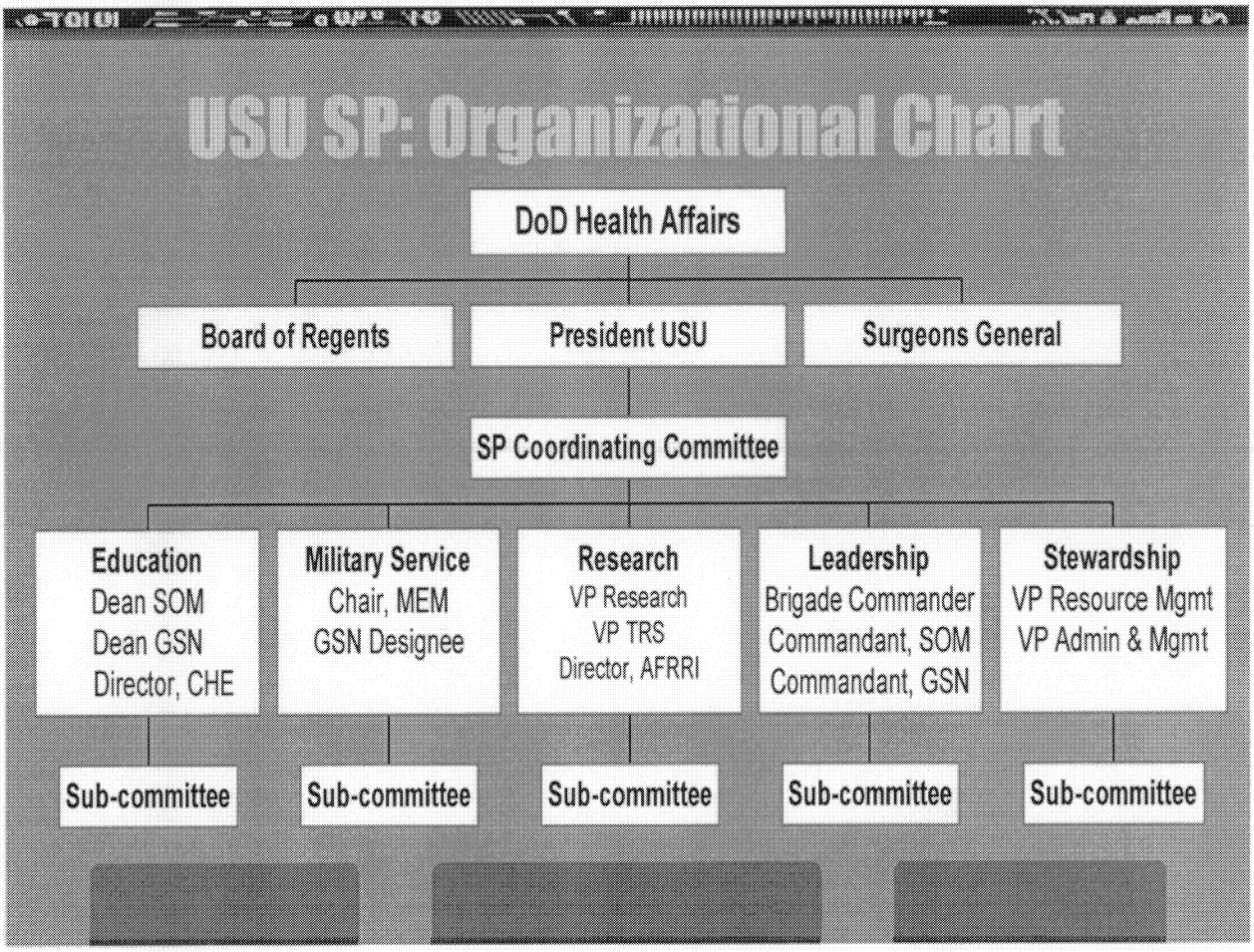

Stewardship
/Rice/Dix/
To protect and enhance the human and physical resources of the University, optimize productivity, promote a sense of family and community, while emphasizing flexibility in response to changing world conditions.

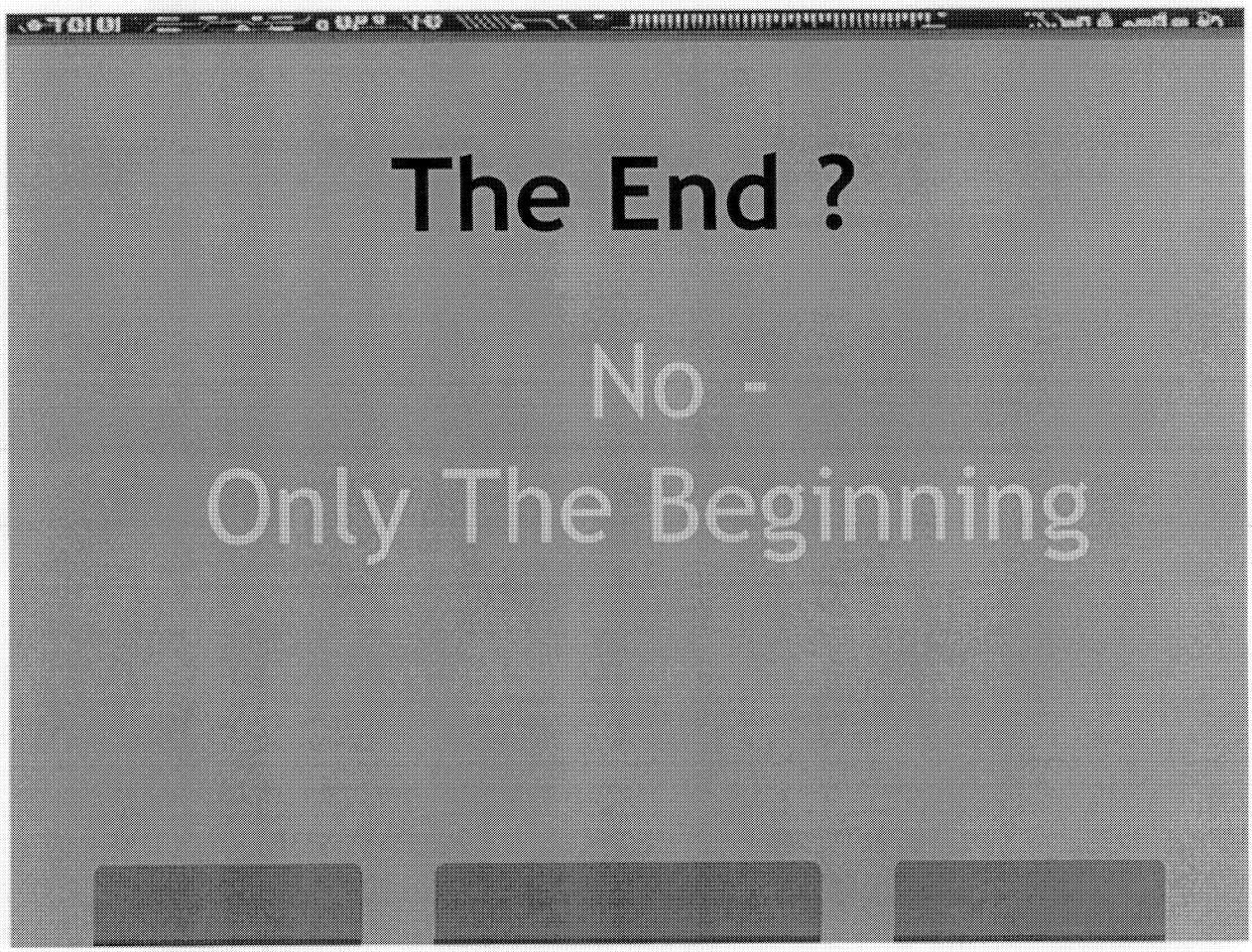

Stewardship Objectives: USU
Will recruit, reward, and retain outstanding and diverse Students, Faculty, and Staff.
Develop and Maintain connections to our Alumni
Will work to ensure that everything that we do is characterized by the principles of ethics and accountability.
Will aggressively seek to secure financial and institutional support to achieve the goals and objectives of this strategic plan as outlined in the above sections on:
Education
Military Service
Research
Leadership

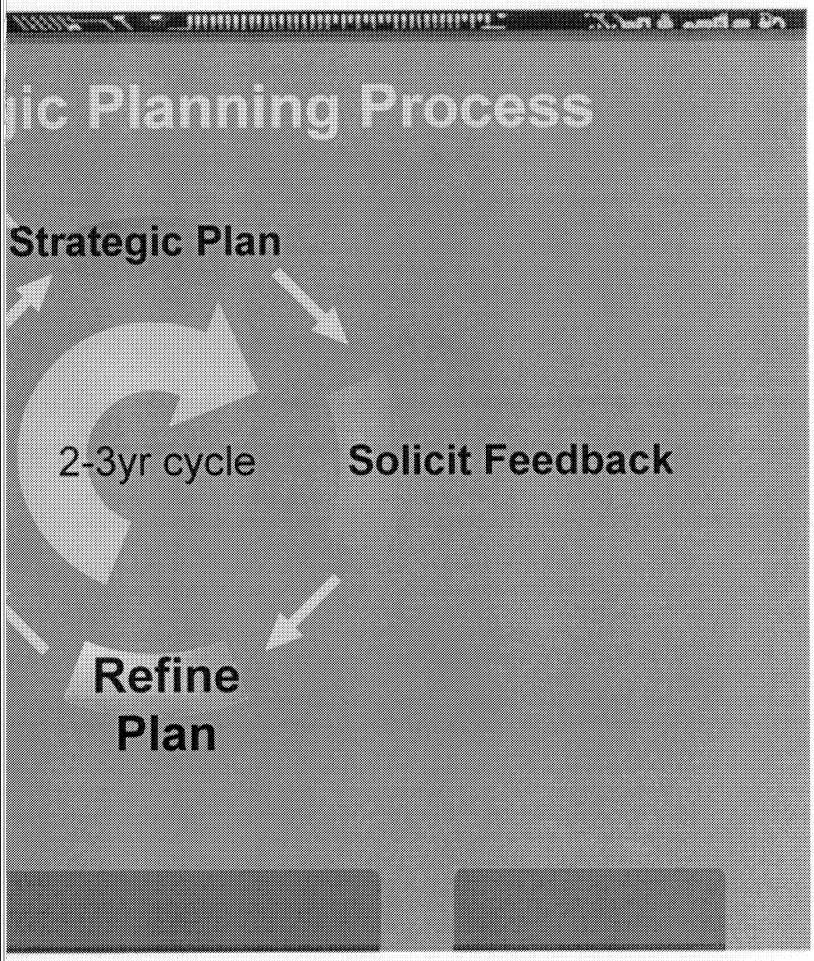

Stewardship Strategy/metric
Will have a comprehensive faculty and staff development and mentoring program
Enhanced Research funding for new investigators
Encourage telework and telecommuting to meet Federal local government goals
"the Metropolitan Council of Governments (COG) ... declaring that 20% ... must engage in telework one or more days a week by 2005"
"25% of the federal workforce eligible to telework do to the maximum extent possible without diminished employee performance."
Obtain state-of-the-art instrumentation for the support of current research future research
Promote Health and Happiness for faculty, staff, and students
Create a "family friendly" environment
Promote healthy lifestyles for everyone at USU
Outreach to HPSP students

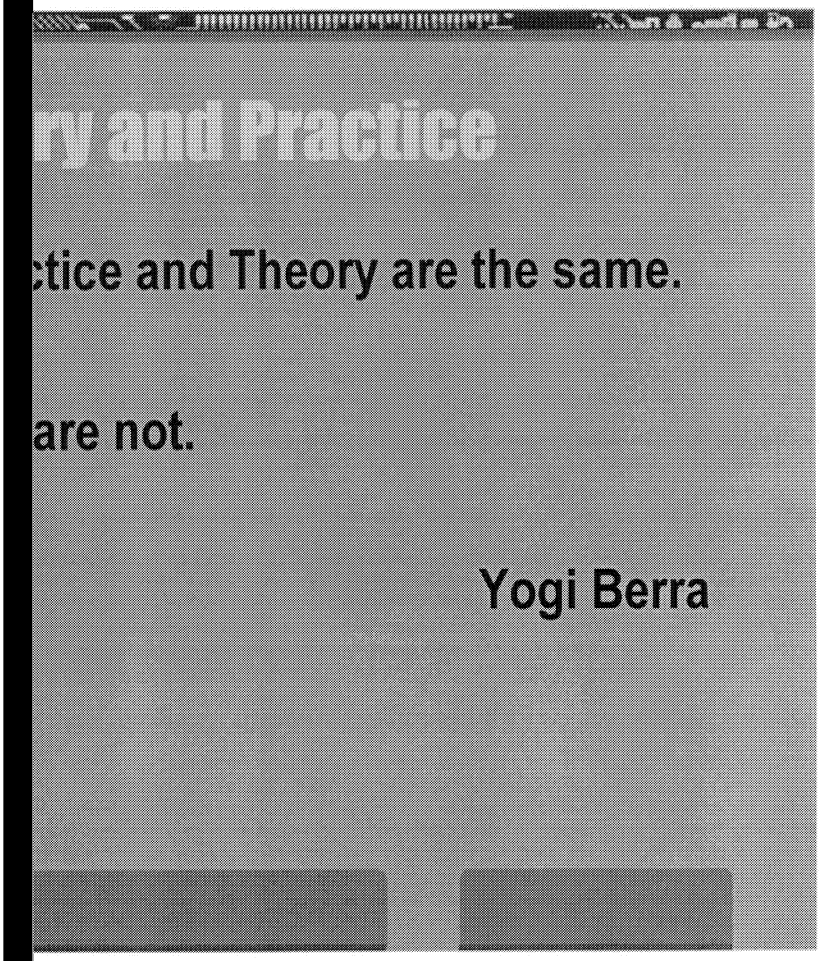

Tasks Ahead
Concurrence and Consensus from BOR
Dissemination of New Proposal to Faculty, Students, and Staff
Through USU Leadership and VP's (done)
Through AO meetings (done)
Through Faculty Senate (done)
Through Dept Chairs and Activity Heads
Through Activity and Dept Staff Meetings


Tasks Ahead
Concurrence and Consensus from Faculty and Staff
Concurrence from Students and Alumni
Develop Detailed Strategies and Metrics to Achieve Objectives under the leadership of the Goal Tenders


USU SP: Organizational Chart
DoD Health Affairs
Board of Regents
President USU
Surgeons General
SP Coordinating Committee
Education
Dean SOM
Dean GSN
Director, CHE
Military Service
Chair, MEM
GSN Designee
Research
VP Research
VP TRS
Director, AFRRI
Leadership
Brigade Commander
Commandant, SOM
Commandant, GSN
Stewardship
VP Resource Mgmt
VP Admin & Mgmt
Sub-committee
Sub-committee
Sub-committee
Sub-committee
Sub-committee


The End ?
No -
Only The Beginning


ic Planning Process
Strategic Plan
2-3yr cycle
Solicit Feedback
Refine
Plan


ry and Practice
ctice and Theory are the same.
are not.
Yogi Berra

APPENDIX C

Selected Examples of Billeted and Off-Campus Members of the USU Departments, Programs and Activities Receiving Special Recognition - 2004/5.

Anatomy, Physiology and Genetics - School of Medicine.

Department Overview. A significant change took place over the past five years in the academic structure of the USU SOM. The Department of Anatomy and Cell Biology and the Department of Physiology were formally merged to create the Department of Anatomy, Physiology and Genetics (APG). The philosophy of the newly formed department conforms with the mission and goals of the USU Strategic Plan; it is based upon a commitment to the highest level of excellence in teaching, research, and administration. The departmental merger has consolidated the teaching, research, and administrative functions of a substantial component of the University within a single faculty group under the leadership of a single Department Chair. Integration of the formerly separate anatomy and physiology curricula is resulting in a comprehensive, cohesive and dynamic educational experience that spans the entire first year medical education. As expected, the departmental merger is yielding benefits beyond the immediate outcomes of curriculum integration.

A Focus on Understanding Tissue and Organ Function within a Clinically Relevant Context. The faculty of APG provide the Nation's next generation of physicians with a comprehensible, intellectually interesting, and integrated curriculum for understanding tissue and organ function within a clinically relevant context. The goal of APG is to integrate the information explosion resulting from the Human Genome Initiative and a myriad of cellular and molecular biological approaches, so that biomedicine explains how the human body functions as an integrated self-regulating system. The systems biology approach is seen as a means to further improve the information transfer process for the major responsibility of APG - the education of USU medical and graduate students. The Basic Anatomy and Physiology Courses have been integrated and are providing students with a comprehensive understanding of tissue and organ function. The APG faculty members oversee courses that extend for the entire first academic year; in fact, first-year medical students spend approximately 53 percent of their first year of medical education with APG faculty. APG has organized its basic instruction into three modules. ***Introduction to Structure and Function*** introduces the student to cell classification, organelle function, and cellular processes, followed by study of the gross anatomy of the human body. An emphasis is placed upon understanding anatomical relationships and the causes and functional consequences of anomalies arising from disease processes. Gross anatomical study of the head and neck region, neuroanatomy, and basic clinical neurology are taught in the second module, ***Clinical Head and Neck and Functional Neuroscience***. Clinical cases are presented and case studies are assigned to students to reinforce their understanding of neurological function. Then, the students return to cellular and subcellular analysis in the third module, ***Structure and Function of Organ Systems***. This module presents an integrated approach to the functions of different cells and organ systems, which include: the functions of muscle; heart; endocrine systems; kidney; respiration; gastrointestinal physiology; hematology; and, reproduction. Again, basic principles are emphasized to underscore clinical relevance.

Recognition of Faculty and Educational Programs. The educational programs of APG are overwhelmingly lauded by medical and graduate students. Its faculty are recipients of many awards,

including the SOM's ***Outstanding Civilian Educator Award***, the ***Class of 2007 Well Beyond the Call of Duty Award***, and three separate awards for excellence in medical education: ***Outstanding Instructor***; ***Student Advocate***; and, ***Best Use of Medical Technology Awards***. During 2004, the medical students hosted ***Operation Appreciation***, during which, APG courses received *Best Overall Course*, *Best Course Supplemental Materials*, and *Outstanding Class Notes*. All seven individual awards were presented to APG faculty members.

Collaborative Activities. In addition to faculty participation in graduate courses offered by the various Doctoral Programs of USU, APG faculty members, in a collaborative project with the National Naval Medical Center (NNMC) Department of Anesthesiology and the USU SOM Department of Anesthesiology, operate the Patient Simulation Laboratory (PSL). Since its inception in 1997, the PSL has created and presented patient simulation-based clinical education for USU students, as well as, for clinicians from local military treatment facilities. To extend the reach of simulation-based education, the PSL supports an ultra-high speed *Internet2* Advanced Distance Education Network, throughout USU, with links to the NNMC and the National Library of Medicine. APG faculty are also active members of two USU interdisciplinary programs: the Molecular and Cell Biology and the Neuroscience Graduate Education Programs. Many graduate students in these programs are undertaking their thesis research in APG laboratories.

Research Activities. True to the view that bench research leads to new breakthroughs for conquering disease and illness, APG faculty direct substantive medical research programs related to military medicine. This newly integrated Department offers a wide range of varied and collaborative research programs, which employ anatomical, electrophysiological, biochemical, cellular and molecular biological methods to address medical problems associated with neurodegenerative disorders such as: Multiple Sclerosis; Parkinson's Disease; Alzheimer's Disease; Down Syndrome; Canavan Disease; traumatic brain injury; stroke; hemorrhagic shock; and, peripheral nerve injury. Faculty members also have active research programs in hypertension and cardiovascular pathophysiology, neuroimmune responses of gastrointestinal function, and understanding metabolic disorders such as Cystic Fibrosis and Diabetes. Studies within the Department focus on: the regulation of neuronal gene expression; neuroendocrine secretory processes; the role of glial cells in CNS injury and disease; and, neuronal regeneration and plasticity. Several programs employ state-of-the-art approaches, to include: cell therapy using engineered cells; gene therapy using viral and chemical vectors; knock-out and transgenic mouse models; microarray; mass spectrometry; and, genomic and proteomic technologies. The Department's research funding is supported by the National Institutes of Health, the National Science Foundation, the TriService Nursing Research Program, the Alzheimer's Association, the Juvenile Diabetes Foundation, the Cystic Fibrosis Foundation, Foundation Jerome Lejeune, the Maryland State Board of Spinal Cord Research, the Department of Defense/Veterans Head Injury Program, as well as, the USU Intramural Grants Program. ***The total amount of research funding, in 2004, for APG exceeded $5.9 million***.

APG Faculty Members Receive Continuous Funding from the National Institutes of Health. One measure of the success of the USU Research Programs and individual investigators is the length of time for which a researcher has held continuous funding for a given project. A number of University faculty hold grants funded by the National Institutes of Health (NIH) for at least five years. The following individuals from APG hold single grants with continuous NIH funding from five to eighteen years: **Regina C. Armstrong, Ph.D., Professor, USU SOM Department of APG** (5 years); **Harvey B. Pollard, M.D., Ph.D., Professor and Chair, USU SOM Department of APG** (six years); and, **Sharon L. Juliano, Ph.D., Professor USU SOM Department of APG** (eighteen years).

Individual Contributions.

Harvey B. Pollard, M.D., Ph.D., Professor and Chair, USU SOM Department of APG, established, in 2002, the USU Center for Medical Genomics and Proteomics in the Department of APG**.** By doing so, APG has become one of ten academic organizations in the United States to win substantial support (12.7 million dollars) from the National Institutes of Health (NIH) for the establishment of a Proteomics Center. The NIH contract has allowed the University to acquire a world-class set of mass spectrometers, as well as support personnel, to form the technical basis for proteomic research in the 21st Century. In terms of NIH funding, this moves APG into the ranks of the top twenty equivalent Departments in United States Medical Schools and provides a crucial research resource to the entire University; USU researchers all benefit from this valuable asset, as well as USU as an institution. The focus of the Center is on lung disease, with a special focus on the inflammatory flagship genetic disease of cystic fibrosis. One citizen in 20 carries one copy of the mutant gene for cystic fibrosis; and, it is the most common autosomal recessive fatal disease, in the United States. Information derived from the Center promises to impact on our understanding of more challenging, but less understood, inflammatory diseases of the lung such as asthma, and inflammatory processes in other parts of the body.

Doctor Pollard was awarded a grant of nearly $500,000 from the Cystic Fibrosis Foundation to use his method of analysis (*conducting high throughput screening - genomic analysis to determine which genes are corrected by the drug; and proteomic analysis to see how changes in the gene correspond to protein changes at the cellular level*) to find drugs that would reduce inflammatory signals and potentially correct trafficking of defective Cystic Fibrosis Transmembrane conductance Regulator (CFTR) proteins. The Center's research team includes 20 faculty members and other scientists. The principal investigators from the Department of APG include: **Gregory P. Mueller, Ph.D., Professor; Meera Srivastava, Ph.D., Research Professor;** and, **Nelson J. Arispe, Ph.D., Research Professor**. The drugs that the Center's team are studying are those that suppress signaling pathways, especially involved in inflammation, among them Digitoxin. Dr. Pollard recently published an article in the *Proceedings of the National Academy of Science* on his discovery that Digitoxin, which was previously used in cases of heart failure and is no longer in production in the United States, was effective in reducing Cystic Fibrosis-related inflammatory responses. He hopes to be granted permission by the Food and Drug Administration to import Digitoxin from Europe for clinical trials. The team has also discovered, based on their work at USU, two additional drugs ready for clinical trials that may yield promising results for Cystic Fibrosis patients.

Mark R. Adelman, Ph.D., Associate Professor, USU SOM Department of APG, is a Course Director of ***Anatomy Block I: Introduction to Structure and Function***, and an instructor in ***Structure and Function of Organ Systems***. He has a long-standing interest in the motility and structure of the acellular slime mold, *Physarum Polycephalum*. Ongoing work is directed at two specific phenomena: 1) What factors regulate the assembly and disassembly of actin microfilaments during the oscillatory protoplasmic streaming seen in the plasmodia? and, 2) What factors determine the assembly and disassembly of actin-based and tubulin-based structures as the amoeboid gametes transform into flagellate swarm cells in response to various external signals?

Denes Agoston, M.D., Ph.D., D.Sc., Associate Professor, USU SOM Department of APG, is an instructor in the APG Courses, ***Anatomy Block I: Introduction to Structure and Function***, and ***Structure and Function of Organ Systems***. *His laboratory has been using the enkephalin gene and the enkephalinergic system as a model of brain function. Enkephalins are neuropeptides that mediate reward*

and behavioral motivation and abnormal enkephalinergic system activity that has been associated with altered behavior and substance abuse. Enkephalins are also involved in regulating immunoresponse in the injured brain. Identifying molecular and cellular components that regulate enkephalin expression in embryonic neurons will aid the understanding of neuronal regeneration in the injured brain.

Juanita J. Anders, Ph.D., Associate Professor, and **Kimberly Byrnes, Ph.D., USU SOM Department of APG, President of the North American Association for Laser Therapy.** Light of specific wavelengths can penetrate to different depths of the body. Through its absorption by a cellular photoreceptor, light can modulate basic cellular functions including energy (ATP) production and DNA, RNA, and protein synthesis. Therefore, light has the potential to serve as a non-invasive therapy for deep tissue repair. Doctors Anders and Byrnes demonstrated that light could increase neuronal survival and regeneration in the injured peripheral nervous system. This work led to a series of experiments on the use of light as a non-invasive treatment for spinal cord injury (SCI). In the United States, approximately 230,000 individuals live with the effects of SCI; and, this number increases by 11,000 each year. SCI causes devastating disabilities due to the inability of axons, within the central nervous system, to regenerate following an injury. While advances in emergency care and rehabilitation allow many SCI patients to survive, methods for reducing the extent of injury and for restoring function are still limited. Doctors Anders and Byrnes, in collaboration with Doctors Waynant and Ilev, colleagues from the Food and Drug Administration, identified that 810 nm light could penetrate to the depth of the spinal cord. Light treatment of injured spinal cored with an 810 nm, 150 mW (dosage = 1589 J/cm2) diode laser, acted as an immunosuppressant and improved axonal regeneration and functional recovery. *This research suggested that light treatment is a novel and effective treatment for SCI; and, in 2003, it led to the filing of a Provisional Patent Application and licensing of this technology to PhotoThera, Incorporated. On April 29, 2005, Dr. Anders work was featured in the Baltimore Sun newspaper*. The article pointed out that Dr. Anders, over the past seven years, has been studying the healing powers of low-level lasers; and, that she has found that in rats, laser therapy can repair severed spinal cords, allowing once-injured animals to walk again. Dr. Anders has explained that lasers are worthy of careful study because when the therapy is conducted properly, it can produce amazing results. Dr. Anders is the Assistant Course Director of ***Anatomy Block II: Clinical Head and Neck and Functional Neuroscience***.

Regin C. Armstrong, Ph.D., Professor, USU SOM Department of APG, and Director, USU Neuroscience Graduate Education Program, is an instructor in the ***Anatomy Block II: Clinical Head and Neck and Functional Neuroscience*** Course. *Dr. Armstrong's current research activities focus on the cellular and molecular mechanisms of glial cell development and regeneration*. During development, one glial cell type, the oligodendrocyte, forms myelin, which ensheathes axons to enable efficient neurotransmission in the central nervous system. Dr. Armstrong has studied the growth factors regulating the proliferation and migration of oligodendrocytes prior to myelin formation. Current experiments also examine the differentiation of precursors of oligodendrocytes into mature oligodendrocytes to identify proteins that bind to DNA and control transcription of genes expressed only in myelin-forming cells. The proliferation, migration, and differentiation of oligodendrocytes are also being studied in adult animals after experimental myelin damage, or demyelination. Dr. Armstrong was awarded a grant in the amount of $609,660 from the National Multiple Sclerosis Society. Dr. Armstrong's research, *Growth Factor Regulation of CNS Remyelination*, will study how to promote recovery of function in the adult human central nervous system by manipulating growth factors to promote the regeneration of oligodendrocytes that go on to repair damaged myelin in the adult rodent. Myelin is a specialized lipid structure that facilitates rapid transmission of nerve impulses along axons (the extensions of neurons that send signals to other neurons and other parts of the body). Dr. Armstrong explains that repair of myelin could lead to the recovery of

functions of axons that remain viable but cannot propagate signals due to damaged myelin. Myelin loss or damage in humans can result from diverse diseases such as multiple sclerosis, as well as, trauma, toxins and infections.

Rosemary C. Borke, Vice Chair for Instruction, Professor, USU SOM Department of APG, is the Course Director of ***Anatomy Block II: Clinical Head and Neck and Functional Neuroscience***; and, she has been a perennial favorite of the first-year medical students. She has made on-going improvements such as the inclusion of additional educational materials that stress clinical correlations, demonstrating the importance of a firm grounding in the basic sciences. A recipient of numerous student awards, Dr. Borke recently completed a series of self-study, interactive CDs that the students use to review course material for ***Clinical Head and Neck and Functional Neuroscience***. *Dr. Borke's research interests include plastic responses of motoneurons during development and regeneration to gain an understanding of developmentally-regulated substances that are re-expressed after nerve injury to adult motoneurons*. The other phase of research is to investigate the role of these substances to changes in and around axotomized adult motoneurons that are considered germane to regeneration: whether the up-regulation of these substances influences anterograde (growing axonal tip at the injury site and reinnervation of the target site) and retrograde (glial reaction and afferent synaptic displacement) regenerative processes.

Diane E. Borst, Ph.D., Research Assistant Professor, USU SOM Department of APG, is an instructor in the APG Courses, ***Anatomy Block I: Introduction to Structure and Function***, and ***Structure and Function of Organ Systems***. Genes that are expressed at higher relative levels in a given tissue, or tissue region, are likely to be critical to specialized tissue function. Changes that alter the expression of these genes, or their subsequent gene products, may underlie tissue-specific diseases. *Dr. Borst studies genes that are highly expressed in the eye. Her laboratory is currently focused on the control of interphotoreceptor retinoid-binding protein (IRBP) gene expression. IRBP is synthesized in the retina solely by the photoreceptor cells and is critical for proper retinal function*. Dr. Borst is also interested in the functional genomics of fovin. The fovea is located in the macular region of the retina and is the highly specialized area of the retina responsible for high acuity vision. Fovin is a novel, previously unidentified, gene; a long-term objective is to determine fovin's function in health and disease.

Howard J. Bryant, Ph.D., Associate Professor, USU SOM Department of APG, is an instructor in the ***Anatomy Block II: Clinical Head and Neck and Functional Neuroscience*** Course. He is also an Associate Professor of Nurse Anesthesia and is the Co-Course Director of ***GSN Physiology*** and ***GSN Neuroscience I and II***. Dr. Bryant has a long-time interest in the electrophysiology of the vascular smooth muscle membrane and its relation to the etiology of hypertension. *In vivo* and *in vitro* studies are carried out using animals with hypertension and their respective normotensive controls to better understand the role of smooth muscle electrophysiology in the development and maintenance of hypertension. *In some experiments, animals are treated with antihypertensive agents to ameliorate the hypertension; and, the effects of these antihypertensive agents on the smooth muscle membrane are examined*.

Ruth E. Bulger, Ph.D., Professor, USU SOM Department of APG, is an instructor in the APG Courses, ***Anatomy Block I: Introduction to Structure and Function*** and ***Structure and Function of Organ Systems***. She is a co-editor of the book, Ethical Dimensions of the Biological and Health Sciences, and has a long-term interest in teaching and publishing in the field of the ethics of scientific research and teaching. Her present research involves evaluating baseline knowledge and understanding of the responsible

conduct of research (RCR) among in-coming graduate students at four academic health centers. *The goal of this work is to help faculty and program directors, who are charged with RCR education, to focus their teaching objectives and to refine their methods by identifying areas in which students are most likely to misunderstand, or to be ignorant of, essential concepts in scientific integrity*.

Rolf Bunger, M.D., Ph.D., Professor, USU SOM Department of APG, is an instructor in the APG Courses, ***Anatomy Block I: Introduction to Structure and Function*** and ***Structure and Function of Organ Systems***. *One of Dr. Bunger's long-term interests includes the development of therapeutic regimens that could be used in heart lung bypass procedures and hemorrhagic shock*. The fundamental concept is that it should be feasible to metabolically protect the myocardium, as well as other high-energy-turnover tissues (brain, kidney, liver), if metabolic strategies can set cellular redox states and energy potentials in such a way that cell function becomes better sustainable and more robust during periods of acute stress such as hypoxemia, ischemia, reperfusion, catecholamine or other toxicities. The current focus is on two natural compounds that appear to satisfy, in part, these requirements: *pyruvate*, a non-receptor-linked glycolytic metabolite; and, *adenosine*, a vasoactive ATP catabolite that serves as a precursor of the vital cellular adenylates and is a ligand at purinergic receptors in the heart and brain.

David E. Dobbins, Ph.D., Associate Professor, USU SOM Department of APG, is an instructor in the APG Courses, ***Anatomy Block I: Introduction to Structure and Function*** and ***Structure and Function of Organ Systems***. *The principal focus of Dr. Dobbin's laboratory is the mechanisms of increased microvascular permeability to macro molecules, subsequent edema formation and potential therapeutic approaches to controlling transvascular fluid flux*. A second major avenue of study centers around the role of the lymphatic system in the formation and alleviation of edema and the potential for pharmacological manipulation of the lymphatic system in a clinical setting. Studies have shown that numerous endogenous vasoactive agents, including catecholamines, acetylcholine, bradykinin, histamine, dopamine, serotonin, platelet activating factor, prostaglandin, neurokinin A and Endothelin-1 all stimulate lymphatic smooth muscle contraction.

Zygmunt Galdzicki, Ph.D., Associate Professor, USU SOM Department of APG, is an instructor in the ***Anatomy Block II: Clinical Head and Neck and Functional Neuroscience*** Course. Dr. Galdzicki's research concerns mental retardation from trisomy 21 - Down Syndrome (DS). The full trisomy 16 mouse (*Ts16*) is an animal model for DS with a triplication of the whole mouse chromosome 16. The distal portion of mouse chromosome 16 is homologous to nearly the entire long arm of human chromosome 21. Since *Ts16* mice die *in utero*, investigators have developed the segmental trisomy *Ts65Dn* mouse. In this model, only part of the chromosome 16 is triplicated and the *Ts65Dn* mouse lives into adulthood. The laboratory focuses on signal transduction pathways and synaptic plasticity in *Ts65Dn* mice using electrophysiological, optical and molecular techniques in order to understand the causes of impaired hippocampal function. *To the extent that abnormalities in the trisomic mouse model of DS represent changes in the human DS brain, this research can provide new clues on the causes of mental retardation in DS.*

Martha C. Johnson, Ph.D., Associate Professor, USU SOM Department of APG, is an educator-track faculty member who teaches in all of the anatomy and physiology medical school courses and in the Neuroscience Graduate Program. Her focus is on basic science medical education, with an emphasis on embryology. She has presented papers on teaching four-dimensional concepts and the place of embryology in today's medical school curriculum.

Sharon L. Juliano, Ph.D., Professor, USU SOM Department of APG, is an instructor in the ***Anatomy Block II: Clinical Head and Neck and Functional Neuroscience*** Course. Her laboratory is interested in the determination of the factors mediating adult and developmental plasticity of the neocortex. Two streams of research occur simultaneously in the lab. The first studies the development of the cerebral cortex and focuses on factors important in the migration and differentiation of cells in the cortical layers. The lab is particularly interested in the role of radial glia that guide neurons into the cerebral cortex and in Cajal Retzius cells that signal positional information to migrating neurons. *The lab also is interested in the interaction between acetylcholine and neurotrophic factors that allow the cerebral cortex to improve functional responses after lesions/disease that normally result in reduced cortical capacity*. They are using genetically engineered cell lines or other vectors to deliver neurotrophins into the cerebral cortex.

Joseph T. McCabe, Ph.D., Professor and Vice Chair for Faculty Affairs, USU SOM Department of APG, is an instructor in the ***Anatomy Block II: Clinical Head and Neck and Functional Neuroscience*** Course. His laboratory focuses on determining factors mediating the deleterious effects of hemorrhagic shock and traumatic brain injury. Of recent interest has been testing the protective effects of diazoxide, a mitochondrial K*ATP* opener that shows great promise as a protectant of vital organs following hemorrhagic shock and the effects of steroids, in particular progesterone, as a medication for the treatment of traumatic brain injury. Diazoxide might prove to be an effective acute therapy for hemorrhagic shock when used in combination with a vasopressor drug. The use of a two-fold approach is based upon the hypothesis that the two most deleterious actions arising in hemorrhagic shock are hypoxia and the disruption of mitochondrial function. The steroid, progesterone, has proven to have dramatic effects upon the expression of genes that regulate cell death (apoptosis). *Inhibition of cell death may prove to be effective as one means of reducing neurological impairments from brain trauma*.

David Mears, Ph.D., Assistant Professor, USU SOM Department of APG, is an instructor in the ***Anatomy Block II: Clinical Head and Neck and Functional Neuroscience*** Course. The goal of Dr. Mears' laboratory is to elucidate the cellular and molecular mechanisms involved in the physiological regulation of insulin secretion and how these pathways are involved in the pathogenesis of diabetes. Insulin secretion from pancreatic *B*-cells is tightly regulated by plasma glucose levels, circulating hormones, and locally released neurotransmitters. Defects in the responsiveness of the *B*-cell to these signals led to the development of type II diabetes mellitus. Since previous studies have shown that changes in *B*-cell membrane potential and intracellular Ca*2+* are crucial steps in regulated insulin secretion, a particular focus is on the modulation of *B*-cell electrical activity and intracellular Ca*2+* levels by nutrient and neurohormonal signals. Studies are also underway to examine *B*-cell function and dysfunction in *Psammomys obesus*, an animal model of dietary induced obesity and diabetes.

Gregory P. Mueller, Ph.D., Professor and Vice Chair for Research, USU SOM Department of APG, is an instructor in the APG Course, ***Structure and Function of Organ Systems***. More than half of all known neuroendocrine peptides are alpha-amidated and in nearly all cases, this structural feature is essential for receptor recognition and signal transduction. Alpha-amidation is a terminal modification in peptide biosynthesis and can itself be rate limiting in the overall bioactivation of peptide messengers. Thus, regulation of alpha-amidation has importance to the vital roles of alpha-amidated peptides in intercellular communication, including control of brain, pituitary, pancreatic and gastrointestinal functions. A major objective of Dr. Mueller's research is to define the mechanisms that control the activity of alpha-amidation

by directly regulating the enzyme involved. Understanding the physiologic regulation of alpha-amidation, and the basis for its control by pharmacologic treatments, should enable new approaches for inquiry into the role of peptide alpha-amidation in health, disease and one's response to therapeutic interventions.

Motilal B. Pamnani, M.D., Ph.D., F.A.H.A., Professor USU SOM Department of APG, is an instructor in the APG Courses, ***Anatomy Block I: Introduction to Structure and Function*** and ***Structure and Function of Organ Systems***. Over the past 26 years, Dr. Pamnani's laboratory research has been in the field of hypertension. In particular, the role of endogenous natriuretic factors in the mechanism of the low renin, volume-epanded type of hypertension. This type of hypertension is present in 30-40 percent of all essential hypertensives, especially in African Americans and the elderly. The research involves not only the understanding of the basic mechanism of this type of hypertension, but also its prevention and treatment. *In collaboration with military investigators from the Walter Reed Army Institute of Research, the role of the endothelium-derived relaxing factor is under study*. The role of two nitric oxide synthases (cNOS and iNOS) in hemorrhagic shock is also being studied. *The present studies search for a therapy that will postpone decompensation and, if necessary, maintain tissue perfusion after the onset of the decompensation phase of hemorrhagic shock*. Since hemorrhagic shock is a dreaded complication of severe battlefield injuries, intervention could significantly improve the overall survival rates in the combat wounded.

Stephen Rothwell, Associate Professor, USU SOM Department of APG, is the Course Director of ***Structure and Function of Organ Systems*** and an instructor in the Course, ***Introduction to Structure and Function***. Uncontrolled hemorrhage due to traumatic injury is a major cause of morbidity and mortality in military casualties. Dr. Rothwell's research has focused on developing enhanced hemostatic agents that can preserve the lives of our wounded soldiers. Huma platelets, a vital component of the coagulation system, presently can not be stored long enough to be shipped to foreign theaters of operation. *In collaboration with the Department of Blood Research at the Walter Reed Army Institute of Research, Dr. Rothwell developed a rabbit kidney bleeding model that can evaluate the efficacy of preserved human platelets. Dr. Rothwell is currently working on an interactive hemostatic dressing composed of salmon fibrinogen and thrombin under funding provided by the Office of Naval Research and in collaboration with industry sources*.

Alan E. Seyfer, M.D., F.A.C.S., Distinguished Professor, USU SOM Department of APG, is the Course Director of ***Introduction to Structure and Function, Part IB & IC***. *His laboratory research interests have been in the field of bone morphogenetic proteins and in the development of biocompatible bone regeneration materials*. His clinical interests have been in the treatment of syndactyly (webbed fingers), cleft lip and palate, craniofacial disorders, rheumatoid hand reconstruction, chest wall reconstruction, and breast reconstruction. ***He is certified by the American Board of Surgery and the American Board of Plastic Surgery and has the Certificate of Added Qualifications in Surgery of the Hand awarded by both of these Boards***.

James M. Terris, Ph.D., Associate Professor, USU SOM Department of APG, is an instructor in the APG Courses, ***Anatomy Block I: Introduction to Structure and Function*** and ***Structure and Function of Organ Systems***. His research interests include renal conservation of salt and water. In mammals this is accomplished by a unique countercurrent mechanism capable of excreting a low volume of urine with minimal salt loss. *The focus of the laboratory is on the regulation of transport processes in the kidney*. The general approach is to analyze the component parts of the kidney, the individual renal tubule segments that make up the nephron, to obtain an integrated view of the regulation of NaC1 and water balance by the

kidney. Peptide-derived polyclonal antibodies have been generated permitting nephron profiling of these transporter and channel proteins under a number of experimental and clinical settings, including congestive heart failure, cirrhosis, hypertension, and nephrotic syndrome. In addition, many knockout mouse models are available, permitting an evaluation of compensatory modifications in the remaining channels and transporters.

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Biochemistry and Molecular Biology - School of Medicine.

Individual Contributions.

Paul D. Rick, Ph.D., Professor and Chair, USU SOM Department of Biochemistry and Molecular Biology, has directed his long-term research interests at determining the mechanisms involved in the biogenesis and assembly of the outer membrane of Gram-negative bacteria. More specifically, *he is interested in defining the genes and enzymes involved in the assembly of enterobacterial common antigen (ECA), a cell-surface glycolipid that is present in the outer membrane of all bacteria belonging to the family, Enterobacteriaceae (Gram-negative enteric bacteria)*. Using a combined genetic and biochemical approach, Doctor Rick has succeeded in defining many of the genes and enzymes involved in ECA assembly. Although the ECA was discovered in 1962, its function has not been defined despite the efforts of many investigators. However, the occurrence of ECA only in Gram-negative enteric bacteria suggests that it serves an important function for these organisms. Indeed, data obtained in Doctor Rick's laboratory strongly suggests that it is required for the growth and survival of these organisms in their normal ecological niche; i.e., the gastrointestinal tract of animals and man. His research is funded by a grant from the National Institutes of Health; and, he continues to serve on the Editorial Boards of several scientific journals.

Peter D'Arpa, Ph.D., Assistant Professor, USU SOM Department of Biochemistry and Molecular Biology, studies *topoisomerase I*, an enzyme that is the molecular target of a widely used class of anti-cancer drugs. His laboratory studies how anti-cancer drugs affect *topoisomerase I* and lead to the elimination of cancer cells. Other research explores the molecular cell biology of *topoisomerase I* and *topoisomerase I-interacting proteins*. The goal of his research is to characterize the cellular functions of *topoisomerase I* and proteins that interact with it to ultimately improve therapies utilizing *topoisomerase I-targeting* anti-cancer drugs.

Saibal Dey, Ph.D., Assistant Professor, USU SOM Department of Biochemistry and Molecular Biology, works on a human protein (P-glycoprotein) found in the cell membranes of cancerous as well as normal cells. This protein removes structurally unrelated hydrophobic compounds from cells by acting as a pump. Since most of the anti-cancer and anti-microbial drugs are hydrophobic in nature, this protein prevents them from reaching their targets. Doctor Dey has been working on the mode of action of this protein and on the molecular mechanism by which this protein can be inactivated using pharmacological agents. The outcome of his study could improve the availability of chemotherapeutic drugs at their site of action and aid in the treatment of cancer and microbial diseases. Doctor Dey and colleagues published: *Functional Characterization of Glycosylation Deficient Human P-glycoprotein Using a Vaccinia Virus*

Expression System in the Journal of Membrane Biology, Volume 173, pages 203-214; and, he also wrote a review on *Biricodar* in Current Opinion in Investigational Drugs, Volume 3, pages 818-823. Doctor Dey was awarded a five-year RO1 grant from the National Institutes of Health for his studies on P-glycoprotein. Dr. Dey and his laboratory team are actively engaged in researching the molecular basis of drug resistance both in cancer cells and in microbial pathogens; they have undertaken a research endeavor to study drug resistance in leishmaniasis. Leishmaniasis is a parasitic disease affecting 10-15 million people worldwide. It is caused by an infectious agent called Leishmania and transmitted to humans through the bites of female sandflies. Although leishmaniasis is confined in the temperate regions of the world, an alarming number of cases have been diagnosed among the active duty United States military personnel returning from service in Afghanistan and the Middle East. *Dey's research is directed towards identifying the drug pump, understanding its mode of action at the molecular level, and formulating ways to inactivate it. They will search libraries of synthetic and natural compounds to find potential small molecules that can interact with the pump and inactivate it. Successful inactivation of the pump will help to overcome resistance to antimony-containing drugs in the parasite and improve therapeutic treatment against leishmaniasis*.

Teresa M. Dunn-Giroux, Ph.D., Professor and Vice Chair, USU SOM Department of Biochemistry and Molecular Biology, studies complex lipid molecules in yeast that are found in cell membranes. Similar compounds in humans are found in the membranes of the brain and nerves. The human brain has several hundred varieties of these compounds. Several gene products (both enzymes and regulatory proteins) are required to synthesize these complex molecules. The discovery of these genes and their function in producing these molecules in yeast is made possible by genetic methods developed in Doctor Dunn's laboratory. *This work will likely suggest what processes in the nerves or brain are affected or regulated by these molecules*. Using a powerful genetic screen devised in her laboratory, many of the genes encoding the sphingolipid biosynthetic enzymes have been identified. A grant to characterize the microsomal fatty acid elongating enzymes was awarded to Doctor Dunn by the National Science Foundation. Doctor Dunn continues to serve as a member of the Metabolic Biochemistry Review Panel for the National Science Foundation.

David A. Grahame, Ph.D., Associate Professor, USU SOM Department of Biochemistry and Molecular Biology, studies metal-containing enzymes in the Archaea, a genetically distinct group of microorganisms that provide insight into the early evolution of life on Earth. *Doctor Grahame studies fundamental problems of how metals such as cobalt, iron and nickel function in several highly unusual enzyme systems*. These processes are closely related to how cobalt acts in the anti-anemia vitamin B-12, and how iron functions in the body. *These studies advance our understanding of metal-containing enzymes in metabolic, ecological, and environmental processes, and contribute to the use of microorganisms for bioremediation, agricultural, and biomedical applications*. Doctor Grahame receives extramural research support from the Department of Energy and from the National Science Foundation. Doctor Grahame has also received research support from the United States Army Soldier and Biological Chemical Command (SBCCOM) for a project on Biological Threat Agent Stimulants.

Susan Haynes, Ph.D., Assistant Professor, USU SOM Department of Biochemistry and Molecular Biology, has identified proteins that regulate the production of gametes (eggs and sperm) in fruit flies. A major cause of human infertility is impaired sperm production. Because sperm develop similarly in flies and humans, *these studies on fruit flies could lead to novel treatments to correct human male infertility*

and to the development of novel pharmacological agents for male contraception. Similarly, the protein that regulates egg production is conserved in humans, and understanding its role could have similar applications to human health. Doctor Haynes has served as the co-chair of two Washington area regional scientific groups: the RNA Club and the Drosophila Interest Group. She is a member of the Executive Committee of the Molecular and Cell Biology Graduate Program and has served on the thesis committees for students in the graduate program. Her research has been funded by an extramural grant from the National Institutes of Health and an intramural grant from USU.

David S. Horowitz, Ph.D., Associate Professor, USU SOM Department of Biochemistry and Molecular Biology, *works on the molecular processes involved in the production of messenger RNA, which carries information from the cell's genes to form the blueprint for the synthesis of cellular proteins*. When initially synthesized, the genetic information is encoded in a large linear polymer containing segments of information separated by non-information-bearing segments. Processing the RNA for the protein synthesis machinery of the cell requires the removal of the non-information segments and the joining of the information-containing segments. How the many cellular macromolecules, that participate in this fundamental process, work together is necessary to understand protein production in cells. Doctor Horowitz receives extramural research support from the National Institutes of Health.

Tharun Sundaresan, Ph.D., Assistant Professor, USU SOM Department of Biochemistry and Molecular Biology, was a Howard Hughes Research Associate and, later, a Research Assistant Professor at the University of Arizona in Tucson, before he came to USU. Dr. Sandaresan earned his Master Degree in Biochemistry from the P.S.G. (Autonomous) College of Arts and Science in Coimbatore, India. He later completed a Doctor of Philosophy Degree in Life Sciences at the Centre for Cellular and Molecular Biology in Hyderabad, India. *Dr. Sundaresan is studying the mechanism of eukaryotic mRNA decay using yeast as the model system*.

Daniel R. TerBush, Ph.D., Assistant Professor, USU SOM Department of Biochemistry and Molecular Biology, studies exocytosis in yeast. Exocytosis is the process whereby vesicles containing lipid and protein cargo bud off the trans Golgi and are targeted to, and fuse with, the plasma membrane. Exocytosis is highly regulated; and, exocytic vesicles only fuse at specific, localized domains on the plasma membrane. A multiprotein complex, termed the Exocyst, serves as a specific targeting patch for the exocytic vesicles and is required for their fusion at these specialized domains in yeast and in higher eukaryotes. The research has focused on understanding the role of a protein, Exo70p, in vesicular trafficking. *Understanding the biochemical mechanism of how exocytic vesicles are specifically targeted to certain areas will help understand such basic processes as cellular differentiation, neurotransmission, and axon pathfinding*. Doctor TerBush's research is funded by the National Science Foundation.

Xin Xiang, Ph.D., Associate Professor, USU SOM Department of Biochemistry and Molecular Biology, studies how intracellular transport works. Cells move material from areas of assembly to areas of destination like a monorail on intracellular networks composed of protein tubules. A virus that infects a cell can use this pathway to transport its genes to the nucleus. Neuronal function requires movement of material produced in the nucleus to the nerve endings and back. A molecular motor, composed of several proteins, attaches to the transportable material and moves it to its destination. *The understanding of which*

proteins are used to regulate the motor; attach cargo to it; and, transport and release the cargo area could lead to antiviral drugs or enhanced neuronal function. Doctor Xiang' extramural research is funded by the National Science Foundation.

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Dermatology - School of Medicine.

Individual Contributions.

Leonard C. Sperling, M.D., COL, MC, USA, Professor and Chair, USU SOM Department of Dermatology, has authored a textbook entitled, Atlas of Hair Pathology with Clinical Correlations. This textbook was available for purchase in March of 2003 and was featured at the American Academy of Dermatology Meeting. The book contains 365 illustrations and is the first comprehensive review of the microscopic pathology of hair disease. It was published by Parthenon Publications. In addition, Dr. Sperling and colleagues published an article, *Viral-associated trichodyslplasia in immunocompromised patients*, in the **Journal of the American Academy of Dermatology** in February of 2004, Volume 50(2), pages 318-322.

Tom Darling, M.D., Ph.D., USU SOM Department of Dermatology, Director of the Sulzberger Laboratory for Dermatologic Research, co-authored the following book chapter in a new dermatology textbook, first presented at the American Academy of Dermatology Meeting in March of 2003: *Application of Molecular Biology to the Study of Skin*, Dermatology, 1st Edition, Harcourt Health Sciences, London, 2003.

Lieutenant Colonel (promotable) Scott A. Norton, Associate Professor, USU SOM Department of Dermatology, has been recognized as an authority on the use of smallpox vaccination. He is working closely with the Centers for Disease Control and the American Academy of Dermatology to develop guidelines for the administration of this vaccine.

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Family Medicine - School of Medicine.

Departmental Activities.

Two-Year Renovation of the University Family Health Center Is Completed. The Department of Family Medicine completed a two-year renovation project for the University Family Health Center. A ribbon-cutting ceremony was held on January 25, 2005; the renovation has resulted in premier clinic

facilities, which will enhance the medical services provided to the University and showcase the excellence of Military Medicine to the USU students.

The Department of Family Medicine provides comprehensive Family Medicine, to include primary care for students, dependents and empaneled faculty, staff and their families. Integrated specialty care includes weekly Sports Medicine, Dermatology, and Genetics Clinics. Minor surgical procedures (cryotherapy, culposcopy, and direct nasolaryngoscopy) are provided at the Family Health Center; and, patient education services (pregnancy health, diabetic teaching, exercise prescriptions and injury prevention) are also components of the myriad of services provided by the Family Health Center. For example, as reported in the 2004 USU Cost Avoidance Fact Sheet, the Department of Family Medicine provided 18,114 hours of patient care and consultation, which generated $1,856,774 of cost avoidance for the Military Health System.

Department Utilizes First Endowment to Enhance Education in Military Family Medicine. During 2003, the Department of Family Medicine established its first endowment to enhance education in Military Family Medicine. At a ceremony held on September 5, 2003, Pfizer Pharmaceuticals presented the Henry M. Jackson Foundation with an unrestricted $20,000 grant to initiate an endowment on behalf of the Department of Family Medicine. During 2004, three senior residents were chosen from across the Department of Defense Family Medicine Residency Programs to participate in a one-month elective in intensive faculty development: 1) **Captain Patrick Depenbrock, USA,** from Fort Bragg; 2) **Lieutenant Kristian Sanchack, USNR,** from Camp Pendleton; and, 3) **Captain Cecelia Ficek, USAF,** from Offutt Air Force Base. These residents were selected because of their superior performance and aptitude for future faculty careers in Military Family Medicine.

Department of Family Medicine Hosts Two Major Conferences. The Department of Family Medicine hosted two significant conferences, during 2004, which were attended by hundreds of physicians: *The 13th Annual Capitol Conference Board Review Course* and the *Fifth Annual American Society of Sports Medicine Marine Corps Marathon Conference*.

The Department of Family Medicine Sports Medicine Fellowship Program. The Department of Family Medicine Sports Medicine Fellowship Program is headed by **Lieutenant Colonel Fred H. Brennan, D.O., MC, USA, Assistant Professor, USU SOM Department of Family Medicine.** LTC Brennan, along with **Commander Scott Pyne, MC, USN,** of the Naval Academy, and **CAPT Bruce Adams, MC, USN,** from the Marine Corps Base at Quantico, Virginia, helped to organize and to provide medical support for the more than 20,000 participants in the annual Marine Corp Marathon, held in Washington, D.C., in October of 2004.

Smoking Prevention Programs Provided at Six Elementary Schools. The Department also sponsored the ***Tar Wars Smoking Prevention Programs*** at six local elementary schools for hundreds of students. This program uses the skills of the Department Faculty and the enthusiasm of the USU SOM medical students to deliver this important program, throughout the local area.

Individual Contributions.

Colonel Brian V. Reamy, USAF, MC, Associate Professor and Chair, USU SOM Department of Family Medicine, was selected to present a plenary lecture on Hyperlipidemia to the 56th Annual American Academy of Family Physicians (AAFP) Scientific Assembly held in Orlando, Florida, in October of 2004. **Colonel Francis G. O'Connor, MC, USA, Associate Professor, USU SOM Department of Family Medicine,** was selected to direct Workshops on Musculoskeletal Medicine at the same meeting. The AAFP Annual Assembly is the largest single physician continuing education meeting in the world.

Colonel Francis O'Connor, MC, USA, Associate Professor, USU SOM Department of Family Medicine, completed and published the 3rd edition of the textbook, Sports Medicine for the Primary Care Physician; the definitive text on the topic, in the Fall of 2004.

Colonel William Sykora, USAF, MC, Assistant Professor, USU SOM Department of Family Medicine; Major Pamela Williams, USAF, MC, Assistant Professor, USU SOM Department of Family Medicine; and **Cindy C. Wilson, Ph.D., Professor, USU SOM Department of Family Medicine,** were co-presenters of their research on enhancing Sports Medicine training within a Family Medicine Clerkship at the Society of Teachers of Family Medicine, in Albuquerque, New Mexico, in January of 2005.

Cindy C. Wilson, Ph.D., C.H.E.S., Professor, USU SOM Department of Family Medicine, coordinated, on behalf of the Department of Family Medicine, with the SOM Offices of Faculty Affairs and Medical Education to sponsor numerous courses and seminars, which strongly supported faculty development throughout the University. During 2004, 195 USU faculty members earned over 1,000 hours of continuing education.

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Medical History - School of Medicine.

Individual Contribution.

Dale C. Smith, Ph.D., Professor and Chair, USU SOM Department of Medical History, participated in numerous background discussions with the National News Media, during 2004. Doctor Smith continued to bring the public's attention to the unique and critically required practice of military medicine and the essential provision of continuity, leadership, and medical readiness by USU for the Military Health System. For example, *CBS Sunday Morning News* featured a piece on battlefield medicine, for release on Sunday, April 13, 2003. The CBS reporters and crew interviewed both the current (Doctor Smith) and past (Robert Joy, M.D.) Chairs of the Department of Medical History, covered a portion of a lecture, and filmed extensively in the USU Patient Simulation Laboratory (PSL). On October 13, 2003, an article, *America's Near-Invisible Wounded*, in the New Republic, featured Doctor Smith's expertise reference American casualties in Iraq. He explained how, since Desert Storm, the size of the battlefield and the forward movement of American forces has made the transfer of casualties to a hospital a much longer

trip; this prompted the Army to rethink the medevac process and eventually yielded a system, on display in Iraq today, which brings surgeons to the wounded rather than vice-versa.

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Medical and Clinical Psychology - School of Medicine.

***Departmental Activities*.**

The USU SOM Departments of Medical and Clinical Psychology and Family Medicine and the USU Center for Health Disparities Research and Education - Project EXPORT. The USU SOM Departments of Medical and Clinical Psychology and Family Medicine were awarded a $7 million grant from the National Institutes of Health (NIH) National Center on Minority Health and Health Disparities to sponsor the USU Center for Health Disparities Research and Education, referred to as *Project Export*. The Center's goal is to promote positive health-related change and ultimately eliminate disparities among racial and ethnic minorities through research, education, training, community outreach, and information dissemination. During 2004, the Center's Research Component sponsored four research projects, which utilized networks outside of traditional settings to eliminate health disparities, establish weight management studies, conduct health assessment surveys, and ensure cultural proficiency training to achieve the Center's goals. *The Center's Education Component provided cultural sensitivity training for eight of the twelve Family Medicine Clerkship rotation sites at the various Army, Navy, and Air Force activities where USU medical students carry out their actual clerkships*. The Community Outreach and Information Dissemination Component collaborated with multiple partners to solidify programs for high school students to tour USU and learn about careers in the health care field. Other partners worked with the Center to maximize the health care provider's encounter as a tool in reducing health disparities through its sponsorship of interactive workshops, presentations by improvisational actors, and the development of questionnaires. **Richard Tanenbaum, Ph.D., USU SOM Department of Medical and Clinical Psychology,** serves as the Principal Investigator. **David S. Krantz, Ph.D., Professor and Chair, USU SOM Department of Medical and Clinical Psychology,** is the Center Director; and, **Lori Dickerson-Odoms** is the Program Manager. (*See CURRICULUM RENEWAL and RESEARCH PROGRAMS AND CENTERS in Section II of the Journal for further information on Project EXPORT*.)

USU SOM Departments of Medical and Clinical Psychology, Medicine, Military and Emergency Medicine, and Preventive Medicine and Biometrics Receive NIH Funding for an Interdisciplinary Training Program. The National Heart Lung and Blood Institute (NHLBI) of the National Institutes of Health (NIH) awarded an Institutional Training Grant (T32) to **David S. Krantz, Ph.D., Professor and Chair, USU SOM Department of Medical and Clinical Psychology,** and **Tracy Sbrocco, Ph.D., Associate Professor, USU SOM Department of Medical and Clinical Psychology,** for an *Interdisciplinary Training Program in Behavioral Medicine and Cardiovascular Research*. The NIH grant provides stipends and expenses for a program to train predoctoral and postdoctoral students in areas of cardiovascular risk factors and prevention and cardiac pathophysiology. The program represents a collaboration of faculty from the USU SOM Departments of Medical and Clinical Psychology, Medicine, Military and Emergency Medicine, and Preventive Medicine and Biometrics.

Faculty Publications, Grants, and Educational Programs. Faculty in the Department of Medical and Clinical Psychology continue to publish research articles in refereed journals in the following areas: 1) obesity and its treatment in minority populations; 2) environmental and occupational aspects of work-related pain disorders in military and non-military populations; 3) acute and chronic stress and its effects on coronary artery disease; 4) behavioral effects of nicotine and effects of early experience in animal models; and, 5) cognitive-behavioral treatment of seasonal affective disorder. In addition to faculty research grants funding this research, the Department also holds a major role in the NIH-funded USU Center for Health Disparities Research and Education, Project EXPORT, and maintains an NIH-funded NRSA Training Program in Cardiovascular Behavioral Medicine.

In addition to its involvement in the education of medical students, the Department continues to maintain two graduate doctoral level programs: one in Clinical Psychology; and, one in Medical Psychology research. Last year, the Clinical Psychology Program received re-accreditation from the American Psychological Association for seven years (the maximum granted). The Military Clinical Psychology Program continues to graduate active duty military clinical psychologists for the Military Health System.

Individual Contributions.

David S. Krantz, Ph.D., Professor and Chair, USU SOM Department of Medical and Clinical Psychology, was selected to serve as President-Elect of the Division of Health Psychology of the American Psychological Association. This division includes more than 4,000 members and represents United States psychologist educators, researchers, and clinicians working in the areas of health and behavior.

Michael Feuerstein, Ph.D., MPH, Professor, USU SOM Department of Medical and Clinical Psychology, was invited by the United States Department of Labor, Occupational Safety and Health Administration, National Advisory Committee on Ergonomics, to present the policy implications of his research. Doctor Feuerstein's presentation, given on January 27, 2004, was part of the Committee's effort, through a small group of invited researchers, to obtain advice and recommendations regarding new ergonomic guidelines, research and outreach. In May of 2005, Dr. Feuerstein briefed the TRICARE Management Activity on a study he completed on *Adherence to DoD Clinical Practice Guidelines and Outcomes*. The objective of this study was to determine the rate of provider adherence to the DoD/VA Clinical Practice Guidelines (CPG) for Acute Low Back Pain and the extent to which provider adherence is associated with patient satisfaction, general health, functional outcome, and health care cost. The results showed that between 10 to 40 percent of cases received CPG adherent care during guideline specified intervals within a 75 day period of care. This was observed prior to, and three years following, system-wide implementation. No differences were found between Low Back Pain and upper extremity diagnoses groups in their rates of change in the four outcomes over years. Multi-variable regression analyses controlling for a number of demographic and clinical variables indicated that CPG adherence was related to better functional outcomes and lower health care costs. Cases with patients who received higher levels of adherent care also reported higher levels of patient satisfaction and general health. (*See Section II, RESEARCH CENTERS AND PROGRAMS, Center for Ergonomics and Workplace Health, for further information on Doctor Feuerstein's work.*)

Neil E. Grunberg, Ph.D., Professor, USU SOM Department of Medical and Clinical Psychology, delivered several development workshops to Army and Air Force medical personnel. For this work, Dr.

Grunberg received an Award for Outstanding Instruction in Faculty Development from the Tripler Army Medical Center. He also participated in the Malcolm Grow Family Medicine Program on *Mentoring and Teaching Medical Residents*.

Willem J. Kop, Ph.D., Associate Professor, USU SOM Department of Medical and Clinical Psychology, was featured on the ***Ediets.com*** website on May 9, 2005, in the article, *Your Anger Can Be Deadly*. In the first study of its kind, a group of researchers has demonstrated that mental stress can provoke dangerous heart rhythms on its own. Certain irregular heart rhythms put people at a high risk for sudden death. The unpredictable nature of these rhythms has posed a major challenge in preventing sudden cardiac death, as written by Dr. Kop. *Dr. Kop emphasizes the importance of the fact that exercise testing may miss some patients at risk; mental stress can provoke a potentially fatal instability in heart rhythm in people who have heart disease at much lower heart rates than is caused with exercise testing*.

Kathyryn Roecklein, Fourth-Year Graduate Student, Medical and Clinical Psychology, in collaboration with **Doctor Kelly Rohan; Ignacio Provencio, Ph.D., Assistant Professor, USU SOM Department of Anatomy, Physiology and Genetics (APG);** and **Mark D. Rollag, Ph.D., Professor, USU SOM Department of APG,** completed a study observing an independent frequency of a specific gene mutation for melanospin in patients with seasonal effective disorder (SAD). This work builds on Doctors Provencio and Rollag's recent discovery of melanospin, a retinal pigment. Their current work is pursuing additional research to assess whether melanopsin may be involved in the pathophysiology of SAD and other circadian rhythm disorders. Ms. Roecklein received a Henry M. Jackson Foundation Fellowship for 2004-2005.

Sari Schwartz, Third-Year Graduate Student, Medical and Clinical Psychology, received a 2004 Young Scholar Award from the American Psychosomatic Society for her paper entitled, *Detection of Mental Stress-Induced Ischemia in Patients with Reduced Left Ventricular Dysfunction*.

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Medicine - School of Medicine.

Individual Contributions.

Robert E. Goldstein, M.D., Professor and Chair, Department of Medicine, is serving as the Chair of the Mortality Endpoint Review Committee (MERC) for the up-coming MADIT-CRT, a randomized trial of a new device for the prevention of severely symptomatic heart failure. This is a large-scale international effort managed overall by Dr. Arthur Moss, Professor of Medicine at the University of Rochester. Dr. Goldstein is listed as a Super-Reviewer by Cardiovascular Research, an international journal for research in cardiology and related areas; Dr. Goldstein also reviews for many other prestigious journals. He also serves as the Section Editor on Hypertrophic Cardiomyopathy for the PIER Program (Physician Information and Education Resource) for the American College of Physicians.

Teodor Brumeanu, M.D. Associate Professor, USU SOM Department of Medicine, recently joined the University. An active researcher, formerly at the Mount Sinai Medical School in New York, Dr. Brumeanu holds various NIH-funded research grants, which he brought with him to USU. His most recently submitted research proposal deals with important treatment strategies for juvenile diabetes.

Louis Cantilena, M.D., Ph.D., Professor of Medicine and Director, Division of Clinical Pharmacology, serves as the President of the Association of Clinical Pharmacology Units (ACPU), an international organization of clinical research professionals who primarily conduct early phase human drug studies. He also chairs the Non-Prescription Drug Advisory Committee for the Food and Drug Administration. Doctor Cantilena is a reviewer for the Internet Journal of Medical Toxicology; and, he is also a member of the Patient Safety Subcommittee of the American College of Medical Toxicology.

Major David Carnahan, USAF, MC, Assistant Professor, USU SOM Department of Medicine, Wilford Hall Medical Center, Lackland Air Force Base, Texas, has been named Chair, Internal Medicine Residency Curriculum Committee, ACP Educational Liaison for the Air Force Chapter (SAFP), and USU Internal Medicine On-Site Clerkship Director at the Wilford Hall Medical Center.

Captain Barbara Cooper, USAF, MC, Assistant Professor, USU SOM Department of Medicine, Malcolm Grow Medical Center, Andrews Air Force Base, Maryland, is the new USU Internal Medicine On-Site Clerkship Director, at the Malcolm Grow Medical Center. She recently completed the UCLA School of Medicine Medical Acupuncture Course and is a Certified Acupuncturist. She is co-authoring an Air Force Instruction on Breastfeeding for Active Duty Women; and, in a volunteer-capacity, she is the La Leche League Leader having started a group at the Andrews Air Force Base.

Commander G. Dodd Denton, MC, USN, Associate Professor, USU SOM Department of Medicine, Deputy Director, Third-Year Clerkships, and Director, National Naval Medical Center (NNMC) Ambulatory Rotations, was selected to attend the prestigious Medical Faculty Development Course at Stanford University. Following that training, he has conducted several workshops at USU and NNMC to train residents in the various learning modules. He was an invited speaker at various sites to include: 1) Grand Rounds at the Malcolm Grow Medical Center, in April of 2004, and at a workshop at the Regional Society of General Internal Medicine Meeting, held in March of 2004; his topic was, *Teaching Students in the Ambulatory Setting: Help Is Only a RIME Away*; 2) he was also a workshop leader at the San Antonio Uniformed Services Health Education Consortium Annual Program Directors Retreat, held in August of 2004, where he spoke on the topic, *From Product to Process: Measures of Clinical Competency*; 3) he also presented at the National Capital Consortium Course for Program Directors, held in January of 2005, on the *Theory and Practice of Assessment*; 4) in May of 2004, he presented at the 27th Annual Society of General Internal Medicine National Meeting, held in Chicago, Illinois; the 2004 CDIM Annual Meeting, at Nashville, Tennessee, held in October of 2004; and, at the 2004 RIME Annual Meeting in Boston, Massachusetts, during November of 2004, on the topic, *Medical Student Resource Use and Knowledge Acquisition in the Medicine Clerkship*; 5) he presented at the National Capital Consortium Course for Program Directors on the *Theory and Practice of Assessment*, in January of 2005; and, 6) he presented at the National Children's Hospital, during February of 2005, on *Control of Session Module of the Stanford Clinical Teaching Series*. In addition, Dr. Denton was invited to speak at the 28th Annual Meeting of the Society of General Internal Medicine National Meeting, held in May of 2005, on the topic, *Blood*

Pressure Monitoring Into Your Clinical Practice. Dr. Denton has had three articles published in Teaching and Learning in Medicine during the past year.

Andre Dubois, M.D., Ph.D., Research Professor of Medicine, was the senior author in the lead Major Article of the April 15, 2003 issue of the Journal of Infectious Diseases; one of the figures submitted with Doctor Dubois' article was selected to illustrate the cover of that particular issue of the Journal. He co-chaired a session entitled, *Evolving Perspectives on H. pylori Disease and Management*, during the 2003 Meeting of the American Gastroenterological Association. At the same meeting, he presented a lecture entitled, *Worldwide Persistence of Helicobacter pylori: Role of Intracellular and Tissue Invasion*, as well as two posters. Dr. Dubois is the Director, Laboratory of Digestive Diseases, and has received Competitive Renewal Funding for the period of September 30, 2004 to September 30, 2008 ($1,350,400 total funding for four years) for his National Institutes of Health/National Cancer Institute R01 grant entitled, *Bacterial & Chemical Carcinogens in Gastric Oncogenesis*. This study will evaluate the theory that *H. pylori* infection is necessary, but not sufficient, to cause gastric cancer. This theory has important medical and public health implications.

Major Steven Durning, USAF, MC, Associate Professor, USU SOM Department of Medicine, Director, Introduction to Clinical Reasoning Course, for second-year medical students, has developed a variety of innovative measures that have significantly improved medical student performance on both standardized tests and clinical practicums. Dr. Durning has published several articles in Academic Medicine and Teaching and Learning in Medicine, as well as an article in the Research in Medical Education Academic Medicine Supplement. Additionally, Doctor Durning serves as a reviewer for these medical education journals. He was also a finalist for the New Investigator Award for Research in Medical Education Meeting, in 2003; and, he served as an invited speaker at several meetings, including the meeting of the Association of Medical Educators in Europe (AMEE). Dr. Durning was selected to receive, in April of 2004, one of the most prestigious awards offered by the American College of Physicians, the first Herbert S. Waxman Excellence in Medical Student Education Award from the National American College of Physicians, during the National ACP Conference, held in San Francisco, California. The new award is designed to provide national recognition to an outstanding medical educator. Dr. Durning also received the Research in Medical Education (RIME) Thomas Hale Ham New Investigator Award from the Association of American Medical Colleges/Research in Medical Education (AAMC/RIME).

Margaret MacKrell Gaglione, M.D., Associate Professor, USU SOM Department of Medicine, Associate Clerkship Director, is often named most influential teacher by the third-year USU SOM students on Internal Medicine Rotations at the Naval Hospital in Portsmouth, Virginia. Dr. Gaglione has had a very active year. She was invited to present the following Grand Rounds and Workshops: 1) *Diagnosing and Treating your Learner's Clinical Reasoning Skills*, with Dr. Paul Hemmer, at the Association of Medical Education in Europe Annual Meeting, held in Edinburgh, Scotland, in September of 2004; 2) a Pre-Course for the Annual Navy Chapter Meeting of the American College of Physicians, at Portsmouth, Virginia, in October of 2004; 3) a presentation at the Association of Internal Medicine Annual Meeting, in Nashville, Tennessee, during October of 2004; and, 4) Grand Rounds at the National Naval Medical Center, in Bethesda, Maryland, on February 3, 2005. In addition, Dr. Gaglione presented the keynote lecture on *Obesity: The Neglected Problem*, at the Annual Navy Chapter Meeting of the American College of Physicians, held in Portsmouth, Virginia, in October of 2004. During the past year, Dr. Gaglione had three papers published in Academic Medicine; and, one article published in Medical Education. Dr. Gaglione is active in community

service and speaks on nutrition at local middle schools; she also serves as an on-site physician for the *American Diabetes Association 30/50/100 Mile Bike Tour: Tour de Cure* in Chesapeake, Virginia.

Lieutenant Colonel William Gilliland, MC, USA, Associate Professor, USU SOM Department of Medicine, Director, Rheumatology Fellowship Program, Walter Reed Army Medical Center, received much recognition during the past year. Dr. Gilliland's Fellowship Program was recently reviewed by the Residency Review Committee and received a maximum five-year accreditation, with no citations, a feat seen in only five percent of Internal Medicine Programs nation-wide. In addition, Dr. Gilliland recently completed a Master Degree in Health Professional Education, as the first military physician to be awarded this degree. He serves on the National American College of Rheumatology's Training and Workforce Committee and was selected to Chair the Educational Forum for the 2005 Annual Meeting.

Colonel Thomas Grau, USAF, MC, Assistant Professor, USU SOM Department of Medicine, was selected as Program Director Internal Medicine, at the Wilford Hall Medical Center, Lackland Air Force Base, Texas. Wilford Hall is the largest Air Force Military Treatment Facility and the principal USU teaching hospital. Dr. Grau's selection emphasizes the importance of USU faculty experience in developing senior military medical educators.

Mark C. Haigney, M.D., Associate Professor, USU SOM Department of Medicine, and Director, Division of Cardiology, was recently recognized for his outstanding work in clinical research by being awarded the J.J. Leonard Prize for Excellence in Clinical Research, Uniformed Services University. In addition, he serves on various important committees: the Mortality Endpoint Review Committee (MERC) for the MADIT-CRT, a large-scale multi-international trial of defibrillators in heart failure; the Executive Committee, Amiodarone Versus Implantable Defibrillators-2 Trial, a VA/DoD-funded study of ICDs in subjects with minimal LV dysfunction; and, the National American Heart Association Cell Transport and Metabolism Peer Review Study Group (April 2003-2006). He is the Principal Investigator of a two-year grant (beginning in 2004 at $130,000) from the American Heart Association, Mid-Atlantic Region (co-PI with Dr. Shao-kui Wei), *Autonomic Modulation of Na/Ca Exchange in Heart Failure*. A prolific writer, Dr. Haigney's recent papers have appeared in prestigious peer-reviewed journals such as: the Journal of the American College of Cardiology (two publications during 2004); the Mayo Clinic Proceedings (2004); and, the Journal of Clinical and Experimental Hypertension (2005).

Lieutenant Colonel Paul Hemmer, USAF, MC, Associate Professor, USU SOM Department of Medicine; Clerkship Program Director for the USU Department of Medicine; and President of the USU Faculty Senate, is the President-Elect of the Clerkship Directors in Internal Medicine (CDIM), the national organization of medical educators.

Przemyslaw Hirszel, M.D., Professor of Medicine, Director, Division of Nephrology, continues to serve as a valued member of the Department of Medicine's Executive Committee and as a mentor to junior faculty members, whom he guides in their research endeavors. He also serves on several University and School of Medicine committees.

CAPT Brian P. Monahan, MC, USN, Associate Professor, USU SOM Department of Medicine, and Director, Division of Hematology/Oncology, also serves as the Program Director in Hematology and Medical Oncology at the National Naval Medical Center in Bethesda, Maryland. He is the Chair of the Department of Defense Working Group on Cancer Research and Policy at the United States Military Cancer Institute. He is also an Adjunct Assistant Professor at the University of Maryland School of Nursing in Baltimore, Maryland. He was recently appointed to the Advisory Council of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), part of the National Institutes of Health (NIH) of the United States Department of Health and Human Services. He is a member of the American Society of Clinical Oncology, the American Society of Hematology, the American College of Physicians, and the American Medical Association.

Chantal Moratz, Ph.D., Research Assistant Professor, USU SOM Department of Medicine, Division of Rheumatology and Immunology, was an invited speaker to the Second RGS Protein Colloquium, presented by The Division for Molecular Pharmacology of the American Society for Pharmacology and Experimental Therapeutics. The presentation was entitled, *Targeted Disruption of RGS1 Leads to Excessive B-lymphocyte Response to Chemokines, Disturbed Plasma Cell Localization, and Distorted Immune Tissue Architecture*. In 2004, her research findings were published in five well respected journals.

Lieutenant Commander Janet Myers, MC, USN, Assistant Professor, USU SOM Department of Medicine, Director, National Naval Medical Center Ward Clerkships, was elected to Fellowship in the American College of Physicians. She is a member of the Editorial Board, American College of Physicians' Medical Student Medical Knowledge Self Assessment Program, 3rd Edition; member, American College of Chest Physicians' Women's Network; and, Manuscript Reviewer, CHEST, Official Publication of the American College of Chest Physicians. Her paper, *Necrotizing Tracheobronchitis in A Patient On High Frequency Oscillatory Ventilation*, was accepted for publication in the Journal of Bronchology.

Colonel Deborah Omori, MC, USA, Associate Professor, USU SOM Department of Medicine, Director, Introduction to Clinical Medicine I & II, is a Member, CDIM Educational Innovations Committee, Clerkship Directors in Internal Medicine, from January 2005 through December 2006. Dr. Omori recently published a paper in the American Journal of Medicine in 2005; she also authored a chapter on Smallpox in *Case-Based CME Bioterrorism Preparedness Series for the Primary Care Physician*, a collaborative effort with the Rush University Medical Center and USU. She also conducted two national workshops on *Improving the Early Identification and Intervention of Professionalism Issues*, at the 27th Annual Society of General Internal Medicine Meeting conducted in Chicago, Illinois, on May 15, 2004; and, at the Clerkship Directors in Internal Medicine (CDIM) National Meeting held in Nashville, Tennessee, on October 15, 2004.

Louis N. Pangaro, M.D., Professor, USU SOM Department of Medicine, and Vice Chairman for Educational Programs, has become President of the Alliance for Clinical Education (ACE), a multi-disciplinary group formed, in 1992, to foster collaboration across specialties to promote excellence in clinical education of medical students. Its members represent all seven of the national organizations of clerkship directors.

Matthew Pollack, M.D., Professor, USU SOM Department of Medicine, uses various animal models to study pathogenic mechanisms of bacterial diseases and host responses to a common grouping of opportunistic bacteria known as gram-negative bacteria. He has published extensively in the fields of bacterial diseases, Pseudomonas infections, endotoxin, sepsis, and septic and hemorrhagic shock. His research on cytokines and hemorrhagic shock has serious implications for military medicine since shock continues to be one of the most common and serious consequences of battlefield injury and one of the most frequent causes of death.

Lieutenant Colonel Michael Roy, MC, USA, Professor, USU SOM Department of Medicine, and Director, Division of Military Internal Medicine, was recently promoted to the academic rank of professor; he was also selected for promotion to the rank of Colonel, in the United States Army. His research activities include: 1) Serving as the Primary Investigator for a $1.25 million grant from the United States Army Medical Research and Materiel Command to study the health effects of DEET, permethrin, and pyridostigmine under stress conditions; he completed the study and presented the results at national meetings and has prepared manuscripts for publication; 2) Participating as the Co-Investigator and subject matter expert on a small business initiative grant with Simmersion Inc., to develop interactive, computer-based teaching modules on bioterrorism for health care providers; and, 3) Serving as the Co-Investigator in a study on the safety of lasers as non-lethal weapons, under a grant from the Non-Lethal Weapons Directorate. Dr. Roy provides peer review for eleven medical journals, with the quality of his reviews recognized for being in the top 10 percent of all reviewers by the *Annals of Internal Medicine*. He is the Editorial Consultant for the American College of Physicians' Information and Education Resource, an on-line evidence-based guide for clinicians, for modules on both posttraumatic stress disorder and complementary and alternative medicine in the treatment of depression. His publications include: Coordinator of a Series of Case-Based Booklets on Bioterrorism, in addition to co-authoring two of the booklets on anthrax and viral hemorrhagic fevers. He is the author of ten articles and two letters published, or selected for publication, in peer-reviewed medical journals. His lectures and abstract presentations include three abstract presentations at the XXXV International Congress of Military Medicine. He co-authored five abstracts presented at national scientific meetings; and, he provided approximately one dozen lectures to military and civilian audiences on improving the diagnosis and treatment of depression and anxiety in primary care, at locations around the Nation, including Philadelphia, Baltimore, Washington, and San Francisco.

Terez Shea-Donohue, Ph.D., Research Professor of Medicine, continues to serve as a member of the National Institutes of Health (NIH/NIDDK CIGP) Study Section; and, she is an *Ad hoc* reviewer on the ZRG-1 Special Emphasis Panel, NIH CIGP and GCMB Study Section. Doctor Shea-Donohue is on the Working Team on Gastrointestinal Motility and its Control in Health and Disease, a collaborative effort between the World Congress of Gastroenterology (Montreal 2005) and AstraZeneca (educational grant) to create a new set of teaching/research material in this field. Doctor Shea-Donohue's new grant support includes an NIH RO1HL-62282, entitled, *Substance P Mediated Cardiovascular Inflammation*; she is a Co-Investigator on the research project, which began February of 2004 and will continue through January 31, 2008, at $200,000 per year. In April and July of 2004, she provided two Invited Presentations at the Ponce University School of Medicine in Ponce, Puerto Rico, and the Center for IBD Research, at the University of Chicago in Chicago, Illinois. Significantly, she published seven articles, over the past year, in prestigious peer-reviewed journals.

Colonel Roy H. Wong, MC, USA, Professor of Medicine, Director, Division of Digestive Diseases, was promoted to the academic rank of Professor of Medicine at Howard University. Within the

American College of Gastroenterology, he serves as follows: Member, Board of Trustees; Chairman of the Ad Hoc Committee on Training; Director of the First GI Jeopardy, American College of Gastroenterology; Director: First Fellows Conference of the American College of Gastroenterology; Member of the Abstract Selection Committee, Esophageal Section; and, Moderator of the Esophagus and Pediatric Session, Annual American College of Gastroenterology Meeting. Also, he is an invited speaker at the Annual American College of Gastroenterology Meeting concerning CT. In the American Gastroenterology Association, Dr. Wong is the Associate Chairman of the Non-GERD and Non-Variceal Bleeding Abstract Selection Committee; Moderator, AGA Research Forum, Esophageal Motility and Physiology, AGA/DDW, New Orleans, Louisiana (2004); and, Moderator, AGA Spotlight on the Best of Digestive Disease Week. In addition, he participated in the CME Videosatellite Program held on May 19, 2004, in Chicago, Illinois; and, he presented four abstracts at national meetings.

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Microbiology and Immunology - School of Medicine.

Individual Contributions.

Alison D. O'Brien, Ph.D., Professor and Chair, USU SOM Department of Microbiology and Immunology. ***Overview.*** Dr. Obrien's major interest is in the pathogenesis of bacterial infections. Specifically, her laboratory investigates: 1) the virulence mechanisms of *E. coli O157:H7* and other Shiga toxin-producing *E. coli*; 2) the contribution of the Rho-modifying Cytotoxic Necrotizing Factor (CNF) to urinary tract infections and prostatitis caused by uropathogenic *E. coli*; and, 3) identification of *Bacillus anthracis* spore surface antigens against which protective monoclonal antibodies may be generated or that can be incorporated into a multivalent anti-anthrax vaccine. ***Pathogenicity of Shiga Toxin-Producing E. Coli*:** Shiga toxin-producing *E. coli* (STEC) cause food- and water borne outbreaks and sporadic cases of intestinal disease manifested as diarrhea, and/or bloody diarrhea (hemorrhagic colitis, HC). About five to ten percent of children infected with STEC can subsequently develop a life-threatening kidney dysfunction called the hemolytic uremic syndrome (HUS). Two important virulence factors associated with many STEC strains are the Shiga toxins (Stxs) and the adhesion, intimin. The long-term objectives of this research project are to define the pathogenic mechanisms by which STEC cause disease and to develop strategies for the prevention and treatment of STEC-mediated hemolytic uremic syndrome. ***Military Relevance*:** *E. coli O157:H7* has the potential to simultaneously infect large numbers of people who ingest as few as 100 organisms in common source food- or water-borne outbreaks (example, the July 1996 outbreak in Japan that affected approximately 10,000 people). In addition, the rate of secondary transmission of *E. coli O157:H7* is high. Therefore, large-scale infection of soldiers with *E. coli O157:H7*, or another Shiga toxin-producing *E. coli* isolate, would likely result in an incapacitating illness among troops. Furthermore, Shiga toxin and other Stx family members are considered potential biological warfare/terrorist threats as indicated by the CDC-mandated restrictions on the shipment of Stxs and Stx-expressing clones.

Cytotoxic Necrotizing Factor Type 1 (CNF1): CNF1 is a member of a family of bacterial toxins that target the Rho family of small GTP-binding proteins in mammalian cells. CNF1 deamidates a single glutamine residue in RhoA, Cdc42, and Rac1, but not in Ras. This deamidation results in the constitutive activation of these GTPases, which can trigger actin stress fiber formation, multinucleation, or cell death, depending on the target cell and dose of toxin. CNF1 is frequently produced by *Escherichia coli* strains that cause urinary tract infections (UTIs) such as cystitis, prostatitis, and pyelonephritis. In support of this

epidemiological connection, Dr. Obrien's group recently showed that CNF1 not only induces apoptosis in human uroepithelial cells, but also provides a growth advantage to uropathogenic *E. coli* (UPEC) in a mouse model of ascending UTI when compared to CNF1-negative isogenic mutants. Additionally, Dr. O'Brien and colleagues found that CNF1 enhances the degree of inflammation and resulting tissue damage in bladders of infected mice and in prostates of rats challenged intraurethrally with CNF1-producing UPEC, and that CNF1-producing UPEC survive better than CNF1-negative isogenic mutants in the presence of human polymorphonuclear leukocytes (PMNs). Taken together, these findings led to the following hypothesis. CNF1 enhances the pathogenicity of UPEC by: 1) promoting uroepithelial cell shedding; 2) evoking a large influx of PMNs while providing toxin-producing *E. coli* protection against PMN-mediated killing; and, 3) facilitating deeper invasion of the bladder or prostate by the infecting strain. The long-term objectives of this project are to test this theory. ***Military Relevance:*** Urinary tract infections (UTIs), of which more than 80 percent are caused by *E. coli*, are among the most common types of bacterial disease in adults. Women are much more likely to have UTIs than are men, a gender disparity that is believed to result from the shorter female urethra. Indeed, as many as 20 percent of all women have at least one episode of UTI in their lifetime, and recurrent UTIs affect approximately one in ten women in the United States. Thus, UTIs, which include infections of the bladder (cystitis) and kidney (pyelonephritis), are a significant source of morbidity among women in the military.

Bacillus anthracis Spore Antigens: *Bacillus anthracis* is a Gram-positive spore-forming rod that, until recently, was best known among microbiologists and veterinarians as an agent of disease in herbivores. That spores of *B. anthracis* could be used as weapons of warfare or bioterrorism has long been recognized, but no successful nefarious application of the microbe in the United States, or during the Gulf War, had been reported, until October 4, 2001. From then, until December of 2001, a total of 22 cases of confirmed or suspected bioterrorism-related anthrax occurred; eleven, of which, were inhalational. For all 22 of these cases, the victims probably acquired the illness by direct or indirect contact with highly concentrated preparation(s) of dried spores present in envelopes sent through the mail. Unfortunately, those individuals potentially exposed to anthrax spores required an extended course of antibiotic therapy. Thus, a remaining health concern is that people who receive antibiotic prophylaxis may present with inhalational anthrax after the conclusion of their therapy as dormant viable spores germinate. One way to increase the likelihood of patient survival, as well as to enhance the probability of protection for those exposed to *B. anthracis* spores is to prevent the germination of the infectious dormant spores into active vegetative cells. The goal of this research project is to identify surface antigens of *Bacillus anthracis* spores against which protective monoclonal antibodies may be generated, or that can be incorporated into a multivalent anti-anthrax vaccine. In addition, this project has a component that emphasizes the development of a mouse model of inhalational anthrax, wherein protective strategies that block spore germination may be evaluated using an *in vivo* imaging system (IVIS). ***Military Relevance:*** The potential use of *B. anthracis* as a weapon of biowarfare was brought to the forefront in the aftermath of the terrorist attacks of September 11, 2001. In light of these recent events, the development of therapeutic agents against *B. anthracis* infection is paramount for the protection of both deployed military personnel and civilians who may come into contact with sabotaged contaminated materials.

ATCC Toxin Laboratory Subcontract: The National Institutes of Health (NIH) has established the Biodefense and Emerging Infections Research Resources Program (BRP). The mission of this program is to allow easy access to NIAID Category A, B, & C agents to scientists with legitimate research, while denying access to individuals or groups with nefarious purposes in mind. This subcontract involves the creation of a facility for the acquisition, authentication and production of select agent toxins, and, subsequently, for the transfer of samples of these quality-assured toxins as reagents to authorized users in accordance with the Select Agent Transfer and Possession Guidelines (HHS 42 CFR Part 1003). ***Military Relevance:*** United States military personnel are at greater risk of encountering biological weapons than any other members of

our society. Therefore, the military scientific community has long been the leader in biodefense research. Readily available standardized research materials for the development of toxin assays, therapeutics, and vaccines would be a great advantage to both the military and civilian biomedical research communities. Ultimately, Armed Forces personnel in the field would benefit from the research facilitated with these research materials.

Within the last 24 months, Dr. O'Brien has published eleven articles and manuscripts in prestigious peer-reviewed primary publications. In addition, Dr. O'Brien also published three reviews and invited papers and chapters with the American Society for Microbiology Press and a prestigious peer-reviewed journal.

Christopher C. Broder, Ph.D., Associate Professor, USU SOM Department of Microbiology and Immunology, had a most productive year. The major focus of Dr Broder's research is the structural and functional analyses on the interactions between enveloped viruses and their cellular receptors. Human immunodeficiency virus (HIV) and new emerging paramyxovirus agents are the two main areas of Dr. Broder's present research work. ***HIV Entry:*** The goals of his work are to identify the steps and requirements of viral envelope glycoprotein (Env)-mediated membrane fusion, the determinants of viral tropism, the discovery of new viral receptors, and the mechanism of Env-mediated fusion. A detailed understanding of these processes will lead to the discovery of new methods of intervention. Current work on HIV-1 includes the Env-mediated fusion mechanism and its interaction with CD4 and co-receptors. The HIV-1 Env serves two functions that are critical in the replication cycle of the virus: binding to host cells and mediating membrane fusion through what is believed to be receptor-induced conformational alterations in its structure. In earlier work, he identified two distinct co-factors (CXCR4/CCR5) for HIV-1 Env-mediated fusion and virus infection. These molecules are members of the chemokine receptor superfamily and are now recognized as actual co-receptors for HIV-1; they influence both the species and cell-type tropism of the virus. His laboratory is engaged in an extensive analysis of the roles these co-receptors play in the fusion process on the molecular level, how they interact, and what role they may play in HIV-1 pathogenesis. In addition, his group is interested in the structure of these viral envelope glycoproteins, with particular emphasis on the immunological characteristics of the native glycoproteins. His laboratory has carried out an extensive analysis of the antigenic structure of native oligomeric Env and use of oligomeric Env preparations as a vaccine immunogen, otherwise known as gp140, which he previously developed while at the National Institutes of Health. Ongoing research work includes the analysis of HIV-1 primary isolate-derived oligomeric gp140 preparations from a host of alternate HIV-1 clads, including a variety of genetically-modified versions of the proteins with the goal of enhancing a neutralizing antibody response when used in small animals. In addition, in collaboration with other laboratories at USU, his team is pursuing novel prime-boost HIV-1 vaccination strategies, with particular HIV-1 isolate Env proteins, using Venezuelan Equine Encephalitis (VEE) replicons and soluble oligomeric gp140 immunogen preparations in small animals and non-human primates.

Hendra Virus and Nipah Viruses: The second area of his work is the investigation of Hendra virus and Nipah virus, which are newly emerging and highly lethal zoonotic agents. These studies are in collaboration with several scientists located at the Australian Animal Health Laboratory in Geelong, Australia. Both viruses are new members of the *Paramyxoviridae* and are now the prototypic members of a new Genus, Henipahvirus. They are related to the Morbilliviruses, of which Human Measles virus is a member, yet they are uniquely distinct from all other known Paramyxoviruses, both on the genomic molecular level as well as their biological, species tropism characteristics. Both viruses are classified as zoonotic BSL-4 agents. Hendra virus emerged in 1994 and was isolated from fatal cases of respiratory disease in horses and humans. Later in 1998-1999, an outbreak of severe encephalitis in people with close

contact exposure to pigs in Malaysia and Singapore occurred. In all, more than 276 cases of encephalitis, including 106 deaths, had been reported - a near 40 percent fatality rate upon infection. Pigs appeared to be an amplifier of the Nipah virus; and, these viruses can also be economically devastating (i.e., over 1.2 million pigs were slaughtered to stem the Nipah virus outbreak). They appear to infect through the respiratory system initially and are capable of causing viremia. Hendra and Nipah viruses both have broad species tropism, which is unusual because most paramyxoviruses are species restricted and do not have other reservoirs in nature. The potential to be weaponized and used as biological warfare agents is clearly possible. They may be amplified in cell culture or embryonated chicken eggs; and, they could be used as a terror weapon targeting humans, as well as, livestock, which would serve as virus amplifiers. Most recently, both Nipah and Hendra viruses continue to make their presence known; and, in early 2004, two Nipah outbreaks in Bangladesh have been confirmed, totaling some 53 human cases of infection. Hendra virus reappeared in Northern Australia, in late 2004, with two cases of fatal infection in horses and one non-fatal human case. Several significant observations in the most recent Nipah virus outbreaks have been made, to include: a higher incidence of acute respiratory distress syndrome; possibly a higher incidence of person-to-person transmission; significantly higher case fatality rates (60-70 percent); and, no direct link to infected livestock or domestic animals. The development of therapeutic or intervention strategies to deal with these emerging viral agents is now of importance. Dr. Border's group has developed recombinant systems to study the attachment and membrane fusion-entry mechanisms of these viruses; and, they have developed novel reagents, which may serve as potential vaccines, as well as, those that can specifically block virus infection and spread. He is also engaged in recombinant virus-like particle formation and assembly for reagent development and for understanding the requirements of particle formation in these novel viral agents. During 2004-2005, Dr. Broder published five articles in prestigious peer-reviewed journals.

Stephen J. Davies, B.V.Sc., Ph.D., Assistant Professor, USU SOM Department of Microbiology and Immunology, has a major interest in the pathogenesis of helminth infections, from the biology of the parasites themselves to the immune responses induced by these pathogens. Specifically, his laboratory investigates the immunopathogenesis of schistosomiasis using a laboratory animal model of human disease. ***Immune Modulation of Schistosome Development:*** Dr. Davies' previous studies using a murine model of *Schistosoma mansoni* infection have demonstrated that, paradoxically, schistosomes require signals from host CD4+ T cells to complete their development normally, suggesting that blocking interactions between blood flukes and host T cells might provide a novel approach to interfering with parasite development. Further, these findings have important implications for efforts to develop effective anti-schistosome vaccines, as the positive effects of T cells on schistosome development may interfere with protective T cell responses induced by vaccination. To establish the molecular identity of the immune signals to which schistosomes respond and elucidate the mechanisms by which CD4+ T cells facilitate blood fluke development, schistosome infection phenotypes are being evaluated in a variety of gene-targeted and transgenic mice using molecular, cellular and biometric techniques. Results from IL-2 mice suggest that early events in T cell activation are critical to parasite development. The significance of T cell receptor ligation in parasite development is now being evaluated using mice deficient in components of the TCR signalling pathway, including PKC-0 and Bc110. To gain insights into the evolutionary conservation of schistosome developmental responses, other schistosomatoids, for which the laboratory mouse is a permissive host, are also being analyzed, including *Schistosoma japonicum* and *Schistosomatium douthitti*. ***Military Relevance:*** Schistosomes infect approximately 200 million people world-wide, the majority of whom reside in developing countries in tropical and temperate climate zones. Schistosome infections are also a significant concern for United States service personnel, Peace Corps workers and civilians who visit areas where transmission occurs. Schistosomiasis has frequently been diagnosed in military personnel deployed to endemic areas and is considered by the Deployment Health Clinical Center to be a significant concern for personnel currently

deployed to the Middle East (*http://www.deploymenthealth.mil/deployments/gulfwar/schisto.asp*). The work in Dr. Davies' laboratory aims to understand how immune responses to schistosomes can be directed to prevent the establishment of blood fluke infections - an essential prerequisite to the development of effective anti-schistosome vaccines.

T Cell Activation by Helminth Parasites: Other pathogens such as viruses, bacteria, and protists activate the immune system by expressing pathogen-associated molecular patterns (PAMPs) that are recognized by host Toll-like receptors (TLRs). However, helminths appear not to express recognizable PAMPs and the mechanism by which these pathogens activate the immune system remains unclear. Using a murine model of *S. mansoni* infection, Dr. Davies' laboratory is analyzing the temporal and spatial distribution of T cell activation during the early phase of infection when schistosome larval stages migrate through various host organs and tissues. These studies indicate that the nature and extent of T cell activation varies with anatomical location. In particular, T cell responses to migrating parasites in intestinal tissues appear qualitatively different from those observed in other organs. This difference may relate to the unique immunological ability of the intestine to discriminate between antigens derived from harmful pathogens and those from harmless sources such as food material and intestinal flora and fauna. The role of professional antigen-presenting cells (APCs) such as dendritic cells and regional variations in dendritic cell populations is being examined to gain insights into regional differences in T cell activation. The findings will be important for the laboratory's efforts to manipulate T cell responses to inhibit the establishment of schistosome infections and will contribute to answering the currently unresolved question of how helminths activate the host immune system. ***Military Relevance:*** Helminths, including nematodes, flukes and tapeworms, collectively infect approximately 2 billion people world-wide, or about a third of the world population. Helminth infections are therefore a significant concern for United States service personnel deployed to areas where transmission of helminth parasites occurs. An understanding of how helminths activate T cells is essential to efforts aimed at controlling the sometimes excessive inflammation that accompanies helminth infection and may also be relevant to other situations where excessive T cell activation is detrimental, such as allergy, atopy, and inflammatory bowel disease.

Dr. Davies has had five articles, manuscripts, and reviews published in peer-reviewed primary publications during the past year (i.e., the International Journal of Parasitology and the Journal of Immunology). In addition, Dr. Davies received the *Research Scholar Development Award*: National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland; this research grant covers from 2004 through 2006, and is entitled, *Immune Modulation of Schistosome Development*.

Chou-Zen Giam, Ph.D., Professor, USU SOM Department of Microbiology and Immunology, had a productive year. Research in Dr. Giam's laboratory concerns the molecular biology and pathogenesis of HTLV-1 with a special focus on the viral regulatory protein, Tax, and its interaction with cellular transcription factors, signaling molecules, and mitotic regulatory factors. Dr. Giam's laboratory is also using molecular and proteomic approaches to study the regulatory proteins: Rta and K-bZIP and NS5A of Kaposi's sarcoma-associated herpesvirus/human herpesvirus 8 (KSHV/HHV-8) and hepatitic C virus (HCV), respectively. ***Molecular Biology and Pathogenesis of HTLV-1:*** The diseases caused by the human T-lymphotropic virus type I (HTLV-1), adult T-cell leukemia (ATL) and tropical spastic paraparesis/ HTLV-1 associated myelopathy (HAM/TSP), have their etiologies in the dysregulated proliferation of CD4+ T-cells. HTLV-1 encodes a critical trans-activator, Tax, which augments HTLV-1 viral mRNA transcription greatly and usurps regulatory mechanisms critical for cell activation and division to facilitate viral replication. The ability of Tax to interact with a multitude of cellular factors to effect potent activation of NF-kB, cell cycle perturbation, and cell transformation is thought to be responsible for the clinical outcomes of HTLV-1 infection. His research focuses on the elucidation of the mechanisms of HTLV-1

Tax action and the mechanism of HTLV-1 leukemogenesis. A United States patent application to exploit the anti-proliferative activity of Tax has been filed through the Henry M. Jackson Foundation.

KSHV and HCV Replication and Interaction with Host Cell Factors: Dr. Giam's research efforts on KSHV/HHV-8, and HCV concentrate on the purification of Rta, KbZIP, and NS5A; the mapping of the sites of phosphorylation of these proteins using tandem mass spectroscopy; and, the identification of cellular factors that co-purify with them using matrix-assisted laser desorption ionization-time of flight (MALDI-TOF) mass spectroscopy. The goal of his work is to elucidate the mechanisms of action of these critical regulatory proteins through the characterization of the cellular partners with which they interact. Dr. Giam has had two articles published in prestigious peer-reviewed primary publications during the past 12 months.

Ann E. Jerse, Ph.D., Associate Professor, USU SOM Department of Microbiology and Immunology. The major research interest of Dr. Jerse's laboratory centers on the mechanisms by which *Neisseria gonorrhoeae* adapts to the female genital tract. The primary research tool that Dr. Jerse and her staff utilize to address this question is a female mouse model of gonococcal genital tract infection that was developed in Dr. Jerse's laboratory. Dr. Jerse's research group currently uses this model to study the role of selected gonococcal virulence factors in infection, including anti-oxidant genes (catalase, cytochrome c peroxidase, methionine sulfoxide reductase), nitrite reductase, sialyltransferase and a phase variable set of outer membrane proteins called opacity proteins. Dr. Jerse also utilizes this model to study interactions between *N. gonorrhoeae* and certain commensal flora that have been proposed to protect against gonorrhea. A second research area in Dr. Jerse's laboratory is the development of vaccines and topical microbicides to prevent gonorrhea. Historically, pre-clinical testing of such prophylactic agents was hindered by the absence of a small animal model of infection. Utilizing the mouse model developed in her laboratory, Dr. Jerse and collaborators demonstrated that intranasal immunization of mice with gonococcal outer membranes results in reduced recovery of *N. gonorrhoeae*. Dr. Jerse is currently evaluating other vaccine antigens for the capacity to prevent murine genital tract infection. With regard to topical agents designed to prevent gonorrhea, Dr. Jerse and her staff recently showed that transmission of *N. gonorrhoeae* to mice can be blocked by several leading candidate vaginal microbicides, several of which are currently under phase II and III testing for the capacity to prevent sexually transmitted infections. ***Military Relevance:*** Gonorrhea ranks high among infections important to the military, second only to chlamydial infection among reportable infections. Over 1,000 cases of gonorrhea are reported in the United States Army each year. Upper reproductive tract infections, which are more serious in terms of time lost from duty and risk of complications, also occur in active duty men and women. In one study of a military population, 16 percent of acute epididymitis was due to *N. gonorrhoeae*. In another study, the rate of ectopic pregnancy was higher among military women than in the United States population at large and equal to the highest recorded rates in the world. The occurrence of ectopic pregnancy among women in remote posts or aboard ships is of special concern in that emergency care might be delayed. Pathogenesis studies performed in Dr. Jerse's laboratory will enhance the understanding of how *N. gonorrhoeae* persists in the genital tract to create a reservoir of infection in the community and will potentially lead to the identification of virulence factors that could be used in a vaccine. Dr. Jerse's work towards developing a vaccine and topical microbicides against gonorrhea is directly relevant to reducing the incidence and costs associated with gonorrhea in military personnel and their dependents. Dr. Jerse published two articles in prestigious peer-reviewed journals during 2004.

Susan G. Langreth, Ph.D., Associate Professor, USU SOM Department of Microbiology and Immunology, made a significant contribution to the ***teaching programs*** of the Department. Her principal

contribution was serving as the ***Course Director of Medical Microbiology and Infectious Diseases (MMID)***, a major 141-hour, second-year SOM course. Doctor Langreth is also the ***Course Director for the four related MedMicro Courses for graduate students (Immunology, Basic Bacteriology, Pathogenic Bacteriology, and Virology)***. For the MedMicro Course, she also served as the Parasitology and Mycology Sections Coordinator, a laboratory/small group instructor, and lecturer (8 hours plus reviews). Dr. Langreth's teaching contributions in other courses included a four-hour lecture in Malaria Epidemiology and Control (PMO569 Graduate Course) and 25 hours of laboratory instruction in Diagnostic Parasitology and Medical Zoology (PMO1002 First-Year Medical Student Course). She served on the Ph.D. Qualifying Examination Committee for EID Graduate Students and is on Dissertation Research Advisory Committees for three graduate students. Dr. Langreth's research is centered on characterization of the relict mitochondrial organelle in *Cryptosporidium parvum*, a protozoan pathogen that causes diarrhea, which is particularly severe in immunocompromised individuals. This work was supported by an intramural grant from USU through September 30, 2004. Dr. Langreth serves on the USU/SOM Executive Committee on Curriculum and on the MultiDiscipline Laboratories (MDL) Advisory Committee. She also served on the Department's search committees for a virologist and an immunologist. Doctor Langreth also published several articles in prestigious peer-reviewed journals during the past year.

Anthony T. Maurelli, Ph.D., Professor, USU SOM Department of Microbiology and Immunology. In the area of ***teaching***, Dr. Maurelli presented lectures in the ***Medical Microbiology and Infectious Diseases (MMID) Course*** (seven hours); and, he participated as a laboratory and small group session leader for that course. Dr. Maurelli also gave eight hours of lectures in the ***Molecular and Cell Biology (MCB) Genetics Course***, for which he serves as the Course Director, and led discussions in the ***Microbiology and Immunology Graduate Course on Prokaryotic and Eucaryotic Cell Biology and Genetics*** (4 class meetings) for which Dr. Maurelli is also Course Director. This year, Dr. Maurelli was awarded an R21 grant from the National Institutes of Health (NIH) to study metabolic modeling of invasive bacteria and HeLa cytosol. He has also received bridge funding while a competitive renewal of his NIH-supported Chlamydia grant is reviewed. Dr. Maurelli's service to the Department and to the USU community includes his membership on the University Safety Committee (of which he is the Chair), the University Biosafety Committee, and the Graduate Education Committee. Dr. Maurelli is a member of the Institutional Review Board of the Naval Medical Research Command. Additionally, he is an active participant on three graduate student committees (to include one of his own students). He is also the Director of the Microbiology and Immunology Graduate Program (i.e., academic director of the remaining students who entered the program before it merged with EID), the immediate supervisor of the Department's washroom personnel, and as noted above, Course Director for the MCB Genetics Course and the Prokaryotic and Eucaryotic Cell Biology and Genetics Course. Lastly, Dr. Maurelli gives freely of his time to elementary schools as a volunteer scientist. He was also an *ad hoc* member of one NIH study section, as well as, a reviewer for several journals. Over the past twelve months, Dr. Maurelli published two articles in prestigious peer-reviewed journals.

D. Scott Merrell, Ph.D., Assistant Professor, USU SOM Department of Microbiology and Immunology, conducts research in areas that impact public health and have military medical relevance. Having no known environmental reservoir, *H. pylori* infects over half of the world's population. Once colonized, it typically resides within the human host for the lifetime of the individual and can cause maladies that range in severity from gastritis, to ulcer disease, to the development of gastric carcinoma or mucosa-associated lymphoid tissue (MALT) lymphoma. Approximately 20 percent of those infected with *H. pylori* ultimately develop some form of overt clinical disease, and it is now accepted that disease outcome is determined by both bacterial and host genetic factors. However, the understanding of the process of disease

onset and progression is still in its infancy. Current work in Dr. Merrell's laboratory takes a two-pronged approach to investigate the process of *H. pylori* pathogenesis. First, since *H. pylori* colonizes and thrives within the human stomach, a site that is inhospitable to virtually all other microorganisms, the bacterium must be able to adapt to the stressful environment. In this organ, *H. pylori* experiences periods of extreme acidity, oxygen tension, iron limitation, and a number of other environmental stresses. Since the microbe's ability to sense and to respond to the environment being encountered is critical for colonization and long-term survival within the stomach, his laboratory has taken a genomic approach to define the transcriptional stress response of the bacterium to a number of different microenvironments. These studies are being extended by genetic and biochemical approaches to elucidate the role of individual genes in long-term survival and colonization of the bacterium. Second, his laboratory is investigating the host changes brought about by the interaction of *H. pylori* with eukaryotic cells. The bacterium is known to deliver a bacterial protein, CagA, to the host cell via a Type IV secretion apparatus. Once in the cell, CagA is tyrosine phosphorylated by members of the Src family of tyrosine kinases and subsequently binds to and deregulates the SHP2 phosphatase. Affected host cell signaling pathways past these are poorly understood, but it is known that the phosphorylation of CagA and subsequent deregulation of host cell signaling results in the induction of actin cytoskeletal rearrangements and morphological changes in infected gastric epithelial cells. In an effort to better understand *H. pylori* induced signaling events, the laboratory has defined host cell transcriptional changes that occur both *in vitro* (in tissue culture) and *in vivo* (in the murine gastric tract) upon interaction of the bacterium with host cells. Current studies are further investigating the roles of the effected genes using a biochemical and cell biological approach and attempting to define their expression levels in gastric biopsy samples from patients suffering from gastric cancer. During the past year, Dr. Merrell published four articles in prestigious peer-reviewed journals.

Eleanor S. Metcalf, Ph.D., Professor and Director of Emerging Infectious Diseases, USU SOM Department of Microbiology and Immunology, and Interim SOM Associate Dean for Graduate Education. In the area of ***teaching***, Dr. Metcalf is a dedicated, organized, and well-liked lecturer and laboratory/small group instructor for the ***Medical Microbiology and Infectious Diseases (MMID) Course***. She is also teaching in the ***Advanced Immunology Course: Cellular and Molecular Immunology***, the core course in the Emerging Infectious Diseases (EID) curriculum. Moreover, she gave four hours of lectures in the ***Molecular and Cell Biology (MCB) Techniques Course***. Dr. Metcalf is a member of several graduate students' Dissertation Committees; and, she chairs one of those Committees. Again this year, she has spent many hours on organizing and directing the Emerging Infectious Diseases (EID) Interdisciplinary Graduate Program. Additionally, during this past year, she has served as the Interim Associate Dean of Graduate Education. She also orchestrated the fifth gathering of prospective graduate students at USU. Dr. Metcalf's ***research endeavors*** have included the submission of an NIH competitive renewal, on which she serves as a subcontractor and which was funded in July of 2004, and an NIH R21 application, which was scored but not in the fundable range, which she will be resubmitting. Dr. Metcalf's ***service to the University*** (besides serving as the Director of the EID Program and the Interim SOM Associate Dean for Graduate Education) includes memberships on the Advisory/Oversight Committee for the Master Degree in Comparative Medicine Program; the M.D./Ph.D. Advisory Committee for the Physician Scientist Training Program; the University Space Committee; the USU SOM Research and Education Endowment Fund Oversight Committee; the Search Committee for the Chair of Pathology; and, the Chair of the Organizing Committee for the 2005 GEC Graduate Student Open House. Her contributions to the extramural scientific community include membership on a Dissertation Committee at the University of Pennsylvania and as an *ad hoc* reviewer for several journals. Basic science advances in the area of emerging infectious diseases can affect the current and future health of individuals throughout the Military Health System. Through the Emerging Infectious Diseases Graduate Program, the USU SOM has increased its capacity and commitment to training students

and fellows in areas of vital interest and importance to military medicine, such as biothreat and bioterrorism agents. Doctor Metcalf published two articles in prestigious peer-reviewed journals, during 2004.

Brian C. Schaefer, Ph.D., Assistant Professor, USU SOM Department of Microbiology and Immunology, participated as a lecturer (five hours), laboratory instructor, and small group session leader in the ***Medical Microbiology and Infectious Diseases (MMID) Course***. Over the last 12 months, Dr. Schaefer has been awarded two extramural grants: the Kimmel Scholar Award from the Sidney Kimmel Foundation for Cancer Research ($100,000/year for two years) and a grant from the Dana Foundation Program in Brain and Immuno-Imaging ($40,000/year for three years). He has also received a USU Exploratory Research Award ($70,000/year for two years); and, his NIH/NIAID RO1 submission has been selected for consideration for funding in October of 2005, through the *Select Payment* program. Additionally, he was a co-investigator on the recently funded NIH/NCRR S10 equipment grant (RR19083-01A1), which will be used to purchase a FACSAria cell sorter for the USU BIC Facility. Dr. Schaefer's laboratory currently consists of two post-doctoral fellows, one MCB graduate student, and two EID graduate students; he has also had two rotating EID students over the past year. Dr. Schaefer has provided service to the USU community by serving as a Co-Chair of the Biomedical Instrumentation Center (BIC) Subcommittee on Imaging, as the Coordinator of the MCB Seminar Series, and as an interviewer for prospective EID graduate students. Dr. Schaefer has also served as a grant reviewer for the National Science Foundation. During 2004, Dr. Schaefer had an article published in the Proceedings of the National Academy of Science.

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Military and Emergency Medicine - School of Medicine.

***Departmental Activities*.**

Graduate Programs in Undersea Medicine and Aviation Physiology. This new graduate program emphasizes multidisciplinary education and research, and represents both a philosophy and mechanism for facilitating scientific investigations that integrate basic and clinical sciences with applied environmental physiology. The objective of this graduate program is to serve the operational requirements of the Uniformed Services. The program's two specialties were developed in response to needs of the line community, particularly in the areas of Undersea Medicine and Aviation Physiology. These areas of study are unique from other medical fields of inquiry and demand specialized training. As such, the program's specialties unify a diversity of disciplines requisite for exploring questions relevant to operational activities and applied situational outcomes. The military student obtains a foundation in the basic sciences with research experience in experimental and applied physiology. The Undersea Medicine Specialty offers a Master of Science Degree (with thesis) and a Ph.D. Degree: and, the Aviation Physiology Specialty offers a Master Degree (with thesis). The graduate program accepted its first students, in August of 2002; and, there are currently two students enrolled in the program. Faculty for the program come from the Department of Military and Emergency Medicine, as well as, other SOM Departments. Collaborative faculty include both active duty officers (some from military laboratories) and civilians, all who are experts in their fields. The Program Director can be contacted by e-mail at <*RHernandez@usuhs.mil*>.

Applied Human Biology Division/Human Performance Laboratory - Establishment and Mission. The Human Performance Laboratory (HPL) was established, in 1984, as part of the Department of Military and Emergency Medicine, at USU, to provide a research base within the Department for conducting clinical and basic research projects relevant to military training and operations that would add to the understanding of factors that enhance/sustain human performance under operational conditions. In concert with the mission of USU, the mission of the HPL is to: 1) provide graduate, medical and other students and personnel at USU opportunities to participate in operationally relevant education and research experiences with a focus on maintenance and enhancement of human performance; 2) serve as a resource to USU and other DoD and government facilities for information relating to health, physical fitness, nutrition, and physical training programs; and, 3) maintain a strong research program for all aspects of human performance and military operational applications. Faculty and staff, within the HPL, participate in the education of medical and graduate students, in ongoing research efforts funded by the National Institutes of Health and the DoD, and in the provision of consultative support for the DoD. Activities of note include the following: ***Educational Materials for the Uniformed Services.*** In September of 1999, two manuals relating to Force Health Protection were prepared and published for the Navy by the faculty and staff in the HPL. These manuals, entitled *Force Health Protection: Nutrition and Exercise Resource Manual* and *Peak Performance Through Nutrition and Exercise*, were widely disseminated for use; many requests for additional printings continue to be received. In the Spring of 2001, both the Coast Guard Health Promotion Directorate and the Marine Corps requested permission to obtain and modify the manual, *Peak Performance through Nutrition and Exercise*, to be specific for their unique Services. Pictures relevant to their particular mission and selected words were changed so that the manual could be made available for all active duty Coast Guard personnel and Marines. Thus, these manuals are now being used by all Services in some capacity. In the Fall of 2002, the PHL produced an education tool, *A Compendium of Nutritional Products*, for divers in the United States Navy. Since the DoD is developing policies relating to the use of nutritional supplements, this document will be of great use to the Navy divers. In sum, educational products prepared by the HPL have been, and are currently being used on a worldwide basis; and, they continue to benefit those who serve in the Uniformed Services.

Individual Contributions.

Kevin Yeskey, M.D., CAPT, USPHS (Retired), Associate Professor, USU SOM Department of Military and Emergency Medicine, and Director, USU Center for Disaster and Humanitarian Assistance Medicine (CDHAM), and his CDHAM team completed multiple education and training activities during the past year. Dr. Yeskey was the Keynote speaker for the following organizations, during the past year: the Indian Health Service; Emergency Management Strategic Healthcare Group, Martinsburg, West Virginia; the Joint Special Operations Medical Officer's Orientation Course at Hurlbert Field, Florida; the University of South Florida; the American Community Preparedness Conference at Louisville, Kentucky; the Defense Medical Readiness Training Institute at Austin, Texas; the Department of Justice, U.S. Marshals Service; the Department of Health and Human Services USPHS Commissioned Corp Training: Public Health and Disasters, Triage, and Medical Consequences of Disasters; Mass casualties and disaster management, Center for International Rehabilitation, Mexico City. Dr. Yeskey was invited as a Subject Matter Expert at the following organizations: the Virtual Training Center at Dartmouth Medical School; the Anthrax Vaccine Modeling Workgroup (NIH/DHHS/UPMC); various review panels for the Department of Health and Human Services; the University of Pittsburgh Medical Center; the Center for Biosecurity in Baltimore, Maryland; and, the Homeland Security Council, Surge Capacity Workgroup. (*For more information on Dr. Yeskey and CDHAM see Section II, USU Research Centers and Programs.*)

(*See Section I, Military Unique Curriculum, of the USU Journal for additional information on the Department of Military and Emergency Medicine.*)

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Neurology - School of Medicine.

A New Department Chair.

Colonel William W. Campbell, Jr., M.D., MC, USA, Professor and Chair, USU SOM Department of Neurology, was selected as the new Chair of the USU SOM Department of Neurology, replacing Bahman Jabbari, M.D. (he had served as Chair since 1998 and retired during the past year from active duty as an Army Colonel to accept an appointment at Yale University). Dr. Campbell was chosen for the position following a nation-wide search. Prior to his selection, Dr. Campbell served as the Chief of Clinical Neurophysiology and Program Director for the Clinical Neurophysiology Fellowship Program at the Walter Reed Army Medical Center in Washington, D.C. The new Chair earned his Doctor of Medicine Degree in 1970 at the Medical College of Georgia, in Augusta. He completed his Neurology Residency, in 1976, at the Letterman Army Medical Center in San Francisco, California; and, he completed a Neuromuscular Disease and Electromyography Fellowship, in 1980, at the Medical College of Georgia. Dr. Campbell was promoted to the rank of 0-6 in October of 2004; he has more than 28 years of commissioned service, including eight and one-half years on active duty in the Air Force, followed by 16 years as an Army Reservist before returning to active duty in the Army four years ago. Dr. Campbell is a Diplomate of the American Board of Psychiatry and Neurology and the American Board of Electrodiagnostic Medicine, and a Fellow in the American Academy of Neurology and the American Association of Electrodiagnostic Medicine.

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Obstetrics and Gynecology - School of Medicine.

Individual Contributions.

Colonel Andrew J. Satin, USAF, MC, Professor and Chair, USU SOM Department of Obstetrics and Gynecology, USU SOM Class of 1986, became the first uniformed member to be appointed to the Accreditation Council for Graduate Medical Education's (ACGME) Residency Review Committee for Obstetrics and Gynecology. This twelve-member group is responsible for accreditation decisions for all Obstetrics and Gynecology Residency Programs in the United States. Dr. Satin a 1986 graduate of the USU SOM, is board-certified in Maternal-Fetal Medicine and Obstetrics and Gynecology. Dr. Satin has emerged as a leader in the use of simulation for residency training in obstetrics and gynecology. In addition to publishing numerous manuscripts, he has delivered plenary session lectures to the Council of Resident Education (CREOG) and workshops for the Association of Professors of Gynecology and Obstetrics (APGO). A nationally recognized expert in labor stimulation and labor management, Colonel Satin has authored over 120 peer-reviewed manuscripts, abstracts, and book chapters. In addition to his

duties at USU and the RRC, Dr. Satin serves as an Oral Examiner for the American Board of Obstetrics and Gynecology and was appointed to the American College of Obstetricians and Gynecologists' Committee on Practice Bulletins - Obstetrics. This group is responsible for issuing national guidelines for obstetrics practice.

Major Amy Asato, MC, USA, Assistant Professor, USU SOM Department of Obstetrics and Gynecology, serves as the Director of Clinical Clerkships. As coordinator and director for all clerkship sites, Dr. Asato has initiated simulation training and expanded and modified the role of problem-based learning (PBL) and the objective structural clinical examination (OSCE) into the curriculum. Board- certified in Obstetrics and Gynecology, Dr. Asato successfully competed for acceptance into the prestigious Solvay-APGO Scholars Program. This national program recognizes and further develops clinician educators for leadership positions within the specialty.

William Catherino, M.D., Ph.D., Assistant Professor, USU SOM Department of Obstetrics and Gynecology, recently joined the Department. Dr. Catherino completed subspecialty training in reproductive endocrinology and infertility at the National Institutes of Health/National Capital Consortium/ USU combined fellowship. Dr. Catherino serves as the Training Director for the USU Center for Health Disparities. He has over 25 publications dedicated to advancing the understanding of diseases that impact the well-being of women.

William H.J. Haffner, M.D., CAPT, USPHS (Retired), Professor, USU SOM Department of Obstetrics and Gynecology, continues to assume special assignments for the Dean of the School of Medicine, to include serving as the Chair of the Student Promotions Committee. Dr. Haffner is active in the Armed Forces District. He has served, or is currently serving, on several American College of Obstetricians and Gynecologists (ACOG) committees, including the Committee on American Indian Affairs, the Committee on Practice Bulletins - Gynecology, and the Committee on Health Care for Underserved Women. Dr. Haffner's years of service to education and gynecology was recognized with his election as President of the Association of Professors of Gynecology and Obstetrics.

Colonel Ernest G. Lockrow, MC, USA, Assistant Professor, USU SOM Department of Obstetrics and Gynecology and Director, Department of Obstetrics and Gynecology Continuing Medical Education (CME) Program, is the only gynecologist in the Department of Defense who is certified on the use of the DaVinci Robot for human surgery. He performed the first-ever laproscopic vesico-vaginal fistula repair with omental - J flap using the DaVinci Robot. Under Dr. Lockrow's leadership, the CME program has expanded to include courses in pelvic anatomy, hysteroscopy, laparoscopic surgery, urologic, and pelvic reconstructive surgery.

Colonel Christopher M. Zahn, USAF, MC, Associate Professor and Vice Chair, USU SOM Department of Obstetrics and Gynecology, succeeded Dr. Satin as the Residency Program Director of the National Capital Consortium's (NCC) Uniformed Services Residency in Obstetrics and Gynecology. Dr. Zahn directs residency training at the Walter Reed Army Medical Center, in Washington, D.C., and at the National Naval Medical Center, at Bethesda, Maryland. Certified in Obstetrics and Gynecology and Pathology, Dr. Zahn developed and directed a Gynecologic Surgical Pelvic Anatomy and Dissection Course. Dr. Zahn, a nationally recognized clinician-educator, is the only uniformed member of the Editorial Board of Obstetrics and Gynecology, the premier journal in the specialty.

(*See Section II, Military Unique Curriculum, Third Year Curriculum, for information on the Department's unique SOM clerkships.*)

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Pathology - School of Medicine.

Individual Contributions.

Robert M. Friedman, M.D. Professor and Chair, USU SOM Department of Pathology, provides nine hours of lecture in ***Pathology 2010***. He is an Instructor in ***Small Group Case Studies*** (eight hours) and an Instructor in the ***Pathology Laboratory*** (where he serves as a substitute for all other departmental instructors). Doctor Friedman is a Member of the Board of Scientific Advisors at the Armed Forces Institute of Pathology; a Lecturer in the Graduate Education Courses in the USU SOM Department of Pathology and the USU Graduate School of Nursing; and, a Special Assistant to the Director of the United States Military Cancer Institute. Doctor Friedman's research activities include a National Cancer Institute grant on *Inhibition of Human Oncogene Expression by Interferon*, a study of the mechanism of tumor differentiation induced by treatment with interferon. This year, his research has uncovered important parameters of the stimulatory effect of nuclear regulatory factor IRF-1 on cellular growth. The research funded by this grant has also studied the role of the enzyme *lysyl oxidase* on cell transformation and the relation of this effect to IRF-1. These findings appear to be of significance in the genesis and the possible treatment of cancers. His publications are on the *Deregulated Expression of Interferon Regulatory Factor* and on *Oncogene-Transformed Mouse Fibroblasts*. He has four additional manuscripts in preparation, making for a total of 270 publications in his bibliography. Dr. Friedman was honored by a reception at the United States Embassy in New Delhi for his 20 years of contributions to Indo-US Collaborative Research in the Biomedical Sciences; and, he recently participated in the signing of an agreement between USU and the Indian Armed Forces to exchange instructors and students and to carry out collaborative research projects. He was also named Elected Honorary Member of the International Society for Interferon and Cytokine Research in recognition of his outstanding scientific and administrative achievements in the field of cytokine research. Dr. Friedman serves on the Editorial Board of the Journal of Interferon and Cytokine Research; and, he is an Adjunct Professor in the Department of Pathology at Georgetown University. He serves as an *Ad Hoc* Reviewer for Nucleic Acid Research, the Journal of Virological Methods, and Analytical Biochemistry. After 24 years of dedicated leadership and service to the USU SOM Department of Pathology and USU, Doctor Robert Friedman announced, in late October of 2003, that he would step aside as Chair upon the completion of a search process for a new Department Chair. He will remain on the faculty as a Professor of Pathology with increasing roles and responsibilities in the United States Military Cancer Institute.

Colonel Richard M. Conran, MC, USA, Professor, USU SOM Department of Pathology, is a consulting pathologist to the National Naval Medical Center (NNMC) and the Department of Pediatric Pathology at the Armed Forces Institute of Pathology (AFIP). He also serves as the Course Director for the ***Pathology MSII Course***; and, he is a principal Instructor in the ***Pathology Laboratory Course*** and the ***Pathology MSII Small Group Case Studies***. As part of his collaborative efforts, he is a Lecturer in the EID Graduate Education Program on ***Fundamentals of Infectious Diseases***; he is a Lecturer in ***BioChemistry*** on ***Nutritional Disorders*** and a Lecturer in ***Histology*** on ***Clinical Correlation in Histology***.

Dr. Conran provides pathology support for the ***Squamous Cell Carcinoma of the Esophagus*** and ***Renal Cell Carcinoma Protocols*** at the National Institutes of Health and for the ***Quick Clot Protocol*** at USU. Other areas of research interest include gestational trophoblastic disease and perinatal pathology. He also has a law degree from the Washington College of Law and is a member of the Virginia State Bar due to his strong interest in legal medicine.

Sara Contente, Ph.D., Research Assistant Professor, USU SOM Department of Pathology, was appointed as Chair of the USU IACUC Committee, in March of 2004, after serving as an IACUC member since 1995. As a part of her collaborative efforts, Dr. Contente lectures for the MCB Course, ***Techniques in Cellular and Molecular Biology (MCB0801)***. Her research program focuses on the mechanism of action of the tumor suppressor, lysyl oxidase, and the regulated expression of the lysyl oxidase gene.

Mary Lou Cutler, Ph.D., Associate Professor, USU SOM Department of Pathology, taught courses for the Molecular and Cell Biology (MCB) and Pathology Graduate Education Programs; in addition, she is the Director of the new MCB Course in Signal Transduction for graduate students. (During 2004-5, Dr. Cutler was the Course Director of ***MCB 509***; she was also a Lecturer in ***MCB 508, Cell Biology***; and, she presented lectures on ***Techniques in Cell and Molecular Biology*** and ***Advanced Virology***). Currently, there are two graduate students working full time on their dissertation research under Dr. Cutler's direction; and, one student from the Pathology Program is nearing completion of her dissertation research. Dr. Cutler's research program focuses on the regulation of mammary epithelial cell differentiation. In particular, she is interested in the mechanism by which activation of the Ras pathway disrupts mammary epithelial differentiation. The Ras pathway is frequently activated by signaling from the ErbB receptors in breast tumors; activation of this pathway is characteristic of more aggressive tumors. Dr. Cutler and her staff are interested in determining which of the effector pathways activated by Ras is responsible for the block in differentiation. Her recent findings have demonstrated that activation of the Raf-Mek-Erk signal transduction pathway by the epidermal growth factor family of mitogenic peptides results in the inhibition of mammary differentiation by inhibiting Stat5, an obligate transcription factor for the expression of genes involved in lactogenesis. In addition, the activation of the Ras pathway prevents the normal down-regulation of the expression of Mek-1 and other kinases and scaffolding proteins that constitute the Raf-Mek-Erk signaling complex. The research in her laboratory is currently supported by two grants. In addition to the graduate students, there is one post-doctoral fellow and a technician working in her laboratory. The laboratory has published one paper and has submitted two manuscripts for publication in the last six months. Dr. Cutler was in the process of preparing three grant applications for submission in May and June of 2005, including a resubmission of an application for a new NIH R01 grant that received a good score, but was not funded on a previous submission. Her duties as the Associate Director for Basic Science of the United States Military Cancer Institute (USMCI) involve promoting basic science in cancer research at USU and at the other USMCI institutions. This year, the USMCI is continuing a funding program for collaborative cancer research; she prepared the funding announcement and arranged for the review of applications for collaborative grants in cancer research. These grants will be available to researchers at USU. In addition, Dr. Cutler arranged seminars for invited speakers and organized the scientific program for the USMCI Cancer Research Session at the USU Research Day. As the Associate Director for Basic Science, she serves on the USMCI Executive Committee and reports to the USMCI Committee of Scientific Advisors on basic science research. Dr. Cutler serves on two grant review committees. One is the USU Merit Review Committee and the other is a study section for the Congressionally Mandated Medical Research Breast Cancer Program. In addition, Dr. Cutler serves on the Molecular Biology Advisory Committee to the American Type Culture Collection. She also is a member of the USU Space Committee; and, she served as a member of the Search Committee for the Associate Dean

for Graduate Education and the Search Committee for the Chair of the Pathology Department. She is a lecturer in the FAES Course, ***Genetics of Cancer***; and, she serves as a member of the National Institutes of Health (NIH) Breast Cancer Think Tank.

Michael J. Daly, Ph.D., Associate Professor, USU SOM Department of Pathology, has been developing a new theory on how radiation kills cells, published in Science magazine <*http://www.sciencemag.org/cgi/content/abstract/1103185*> in November of 2004; and, his research was reviewed in detail in FEMS Microbiology Reviews, 29, pages 361-375 (2005). Specifically, Dr. Daly reported a chemical basis for radiation resistance in the bacterium *Deinococcus radiodurans*, famous for its extreme resistance to X-rays and gamma-rays, and the subject of research for 50 years. Cellular accumulation of high levels of manganese (Mn) in combination with low levels of iron (Fe) appears to be key to recovering from radiation in *Deinococcus* and other resistant organisms. In contrast, Fe-rich, Mn-poor organisms are very sensitive to radiation. Intracellular, accumulated Mn serves as a scavenger (antioxidant) of reactive oxygen species (ROS)(superoxide and hydrogen peroxide) (oxidative stress), with Mn cycling between the divalent and trivalent states. Evidence supports that the ratio of Mn and Fe in a cell determines the relative abundance of different ROS produced during and after irradiation since the presence of Mn during water radiolysis favors superoxide-scavenging and oxygen production without intermediate release of hydroxyl radicals, whereas the presence of Fe favors the production of hydroxyl radicals and oxygen without superoxide-scavenging. Dr. Daly has presented the case that Fe-rich cells with weak anti-oxidant systems are killed by superoxide and related ROS induced by radiation. Thus, intervention to promote recovery from radiation injury might be possible using agents that remove superoxide; the Science paper points to potential practical applications, including environmental biotechnology. For example, it might be possible to substantially increase the environmental resistance characteristics of bacteria used for clean-up of radioactive wastes. Development of treatments to protect cells from radiation injury are also important to cancer therapies, and importantly, the superoxide-scavenger, Tempol, has recently been shown to be highly effective as a radioprotector in humans. His laboratory has been dedicated to the genetics of radiation resistance since 1992, and to engineering *Deinococcus* for clean-up of Cold War radioactive wastes since 1997. This work is being featured as part of a National Geographic documentary to be aired in the Summer of 2005. The Daly Laboratory Website is at <*http://www.usuhs.mil/pat/deinococcus/index_20.htm*>.

Gabriela S. Dveksler, Ph.D., Associate Professor, USU SOM Department of Pathology, contributed to her Department and the University during the past year. Dr. Dveksler's laboratory works on the regulation of the maternal immune system during pregnancy by placentally-made glycoproteins in humans and rodents. The capacity of these proteins to regulate the innate and adaptive immune system has led to a productive collaboration with a research group working on multiple sclerosis. Her laboratory has published an average of three papers per year in peer-reviewed journals. Dr. Dveksler serves as a members of the USU Biosafety Committee and is a member of the MCB Program Admissions Committee. Dr. Dveksler was selected by the National Institutes of Health (NIH) to serve as a member of the Pregnancy and Neonatology Study Section, which is part of the National Institute of Child Health and Human Development. In addition to her service to USU and the NIH, she served as the Editor for the first and second editions of PCR Primer: A Laboratory Manual, published by Cold Spring Harbor Laboratory Press. Dr. Dveksler is the Course Director for ***Techniques in Molecular and Cellular Biology (MCB801)*** at USU; and, ***Trac 9*** at FAES, NIH. She is also serving on three Thesis Committees for Pathology, Neuroscience, and Molecular and Cell Biology Graduate Students; and, she serves as a mentor for two Molecular and Cell Biology Graduate Students. She is the principal investigator in a 5-year grant awarded by the NIAID at NIH and has recently submitted her competitive renewal of a 5-year grant to the National Institute of Child Health and Human Development.

Philip M. Grimley, M.D. Professor, USU SOM Department of Pathology, serves as a ***Pathology Core Course*** Lecturer on Anemias, Leukemias and Lymphomas (8 hours). He is a Primary Instructor for 28 ***Pathology Laboratory Sessions*** with groups of 24 students (56 contact hours); and, he serves as an Instructor in small group cases with 8 students. In ***Histology for Pathologists***, he lectures on the Hematopoietic and Cardiovascular Systems; in the ***Pathology for EID Program***, he lectures on Tissue Pathology of Virus Infections (with clinical correlations); in the ***Biowarfare Course***, he lectures on Insect Borne Virus Pathogens. In the ***Pathology Graduate Courses***, he lectures on Leukemia Pathogenesis (CML, CLL); and, in the ***Interferon Course***, he lectures on IFN Antiproliferative/Antiviral Mechanisms (molecular signals). Dr. Grimley has a secondary appointment as a Professor in Molecular Cell Biology. In the ***Molecular and Cell Biology Course (MCB508 Core Course)***, he lectures on (1) The Cell Cycle (2 hours) and Mechanisms of Apoptosis (2 hours). Dr. Grimley is a member of the Commission on Laboratory Accreditation of the College of American Pathologists (CAP) and serves as the State Commissioner for Maryland with responsibilities related to the certification of more than 50 hospital and private laboratories. His CAP participation contributes to the certification of more than six United States Army or United States Navy clinical or research laboratories. Dr. Grimley is a member of Study Sections for Breast and Prostate Cancer Research Programs sponsored by the Department of Defense. He is an Adjunct Professor at the University of Maryland; and, he participates in seminars and works with graduate students. He is an active member of the United States Military Cancer Institute (USMCI), serves on the USMCI Tissue Committee, and participates in USMCI symposia. As a member of the USU Patent Review Committee, he participates in monthly reviews of patent applications for the Henry M. Jackson Foundation for Military Medicine (HMJF). As a member of the USU Promotions Committee, he conducts quarterly reviews of faculty appointments and promotions. He is an *ad hoc* Reviewer for the Journal of Immunology and the Journal of Biochemistry. Dr. Grimley's research is focused on *Therapeutic Modulation of Apoptosis*; this work aims to improve the efficacy of chemotherapy for malignant lymphomas and refractory epithelial cancers. He has obtained funding for studies of refractory ovarian cancers from the USMCI and has two United States patents related to novel strategies for chemotherapy. Efforts to translate this work into clinical practice include a cooperative research & development agreement sponsored by the HMJF with a local pharmaceutical firm.

Elliott Kagen, M.D., Professor, USU SOM Department of Pathology, provides three lectures and 33 laboratory instruction sessions in the ***MSII General and Systemic Pathology Course*** with approximately 69 student contact hours. Dr. Kagen provides extensive lectures during the school year: 1) he lectures for the Pathology Graduate Student Program on *Oxidants and Acute Respiratory Distress Syndrome* (Topics in ***Pathogenesis Graduate Course*** - approximately two student contact hours); 2) he lectures in the Pathology Graduate Student Program on *Mitogen-Activated Protein Kinases in Lung Injury* (Topics in ***Pathogenesis Graduate Course*** - approximately one student contact hour); 3) he provides the ***Lecture and Microscope Session*** to the Emerging Infectious Disease Graduate Program on *Lung Infections*; 4) he lectures for the ***USU Occupational and Environmental Medicine Residency Program (PMO542)*** on *Occupational Carcinogenesis* - approximately two student contact hours; 5) he lectures on *Bioregulators as Instruments of Terror* in the Johns Hopkins University Graduate Course, entitled: ***BioTerrorism, Science and Policy: The International Scientific and Diplomatic Challenge of the 21st Century***; and, 6) he lectures in the ***Biotechnology Program*** of the Zanvyl Kragler School of Arts and Sciences, John Hopkins University, on *Scientific and Medical Aspects of Bioterrorism and Biowarfare*; *Scientists and Health care Community Preparing for the Challenge of Bioterrorism*; and, *Filoviruses as Possible Bioterrorism Agents*. In addition, Dr. Kagan serves as a regular Reviewer of Manuscripts for the American Journal of Respiratory and Critical Care Medicine, the American Journal of Respiratory Cell and Molecular Biology, Experimental Lung Research, and Environmental Health Perspectives. Dr. Kagen has served as an *ad hoc* Reviewer for the National Institutes of Health (NIH) Chemical Pathology Study Section, Oncological Sciences Integrated

Review Group, in Washington D.C.; and as an *ad hoc* Member of the NIH Lung Biology and Pathology Study Section in Washington, D.C., since May of 2002. Since February of 2002, he has been a member of the External Advisory Committee, Xavier University/Tulane University NIEHS-funded ARCH Research Program; and, he has served as an *ad hoc* Reviewer for the Cooperative Grants Program of the United States Civilian Research and Development Foundation (CRDF), since July of 2001. In addition, Dr. Kagen has served as an *ad hoc* Reviewer for the Veterans Administration Merit Review Board, since March of 1987. Dr. Kagen is the Principal Investigator on an exploratory NIH research grant: *Biodefense Against an Aerosolized Ebola Threat*, which is funded from July 1, 2003, through June 31, 2005 (his application received a Priority Score of 1.26 by the Lung Biology and Pathology Study Section in February of 2003, purportedly the best-ranked application of all proposals submitted on that round to this particular Study Section).

Radha K. Maheshwari, Ph.D., Professor, USU SOM Department of Pathology, actively serves as: a member of an NIH Study Section; a member the USU Graduate Education Committee; a Program Director in the USU Graduate Education Program; as a member of the Henry M. Jackson Foundation Committee for Graduate Fellowship; a member of the University BSL-3 Committee; a member of the United States Military Cancer Research Institute (USMCI); a faculty member in the USU SOM Molecular and Cell Biology and Emerging Infectious Diseases Graduate Education Programs; a member of the Graduate Students Thesis Committee; a mentor to area high school students; a coordinator of the Indo-US Activities at USU; and, as an Adjunct Professor at the Birla Institute of Technology and Science located in Pilani, India. Since 2002, Dr. Maheshwari has lectured in two courses on ***Interferons*** and ***Topics in Pathogenesis***. He also lectures in the ***Emerging Infectious Diseases Course*** and participates in the ***Bioterrorism and BioDefense Course***; and, he continues to mentor both Graduate Education Students and Post-Doctoral Fellows. Dr. Maheshwari has been repeatedly requested to serve as an Invited Speaker at the Industrial Toxicology Research Center in Lucknow, India; he also continues to serve as an Invited Speaker and to chair sessions at the Birla Institute of Technology and Science in Pilani, India. Significantly, in January of 2003, Doctor Maheshwari was recognized as the Organizer of 20 Years of INDO-USU Collaborative Efforts in Research and Education; and, he edited a *Summary of 20 Years of Collaborations*. Dr. Maheshwari continues to serve as an Invited Speaker at the Army Hospital in New Delhi, India.

Clifford M. Snapper, M.D., Professor, USU SOM Department of Pathology, continued as a Lecturer in the ***MSII Pathology Course***, as well as graduate courses in Pathology, the Emerging and Infectious Diseases Program, and the Molecular and Cell Biology Program. He was appointed to the Search Committee for the new Chair for the Department of Pathology. Dr. Snapper also continued to serve on the Executive Committee of the Molecular and Cell Biology Program. In addition, Dr. Snapper established and has served as the Director of the Institute for Vaccine Research (IVR), at USU. He was able to do so with the support of the USU SOM Research and Education Endowment Fund. The IVR, centered in the Department of Pathology, is an interdepartmental effort, including the Department of Pediatrics, for the development of novel, universal strategies for enhancing antibody production to poorly immunogenic proteins, peptides, and polysaccharides. ***These antigens serve as vaccine targets for many bacterial and viral pathogens of clinical relevance to both military and civilian populations.*** In order to facilitate commercial development of any promising approaches and/or products arising from the basic and pre-clinical studies conducted at the IVR, a Cooperative Research and Development Agreement (CRADA) was established between USU, Biosynexus, Inc., a Rockville, Maryland-based biotechnology company specializing in anti-bacterial immunity, and the Henry M. Jackson Foundation for the Advancement of Military Medicine (HMJF). The IVR has three major projects: 1) development of a novel protein carrier for protein-polysaccharide conjugate vaccines; 2) development of a novel DNA-RNA adjuvant for stimulating humoral and cell-

mediated immunity; and, 3) evaluation of a novel reagent for preventing bacterial septic shock. Dr. Snapper's laboratory has continued its studies on the mechanisms underlying the antibody response to *Streptococcus pneumoniae* in vivo. These studies include the role of dendritic cells, T cells, cytokines, co-stimulatory molecules, suppressor mechanisms, and Toll-like receptors. The mechanisms, underlying the induction of antibody isotype responses specific for both proteins and polysaccharides expressed by the bacteria, are compared and contrasted. In addition to revealing novel basic immunologic processes, these studies have implications for the design and development of vaccines, and other immunotherapies directed against extracellular bacteria. In light of the quality of his peer-reviewed publications, Dr. Snapper was selected to the Editorial Board of the journal, Infection and Immunity; and, he has continued to review manuscripts for The Journal of Experimental Medicine, The Journal of Immunology, Infection and Immunity, and Vaccine.

Colonel J. Thomas Stocker, MC, USA, Professor, USU SOM Department of Pathology, serves as a Lecturer in the ***MSII Pathology Course***; he also is an Instructor in both the ***MSII Laboratory Course*** and the ***MSII Small Group Sessions***. As further examples of his collaborative support, Dr. Stocker was a Lecturer in the following: the ***Histology Course***; the ***Pediatric Seminars***; the ***CPC Conferences*** at both the Walter Reed Army Medical Center (WRAMC) and the National Naval Medical Center (NNMC); the ***Pathology Seminars*** at WRAMC and NNMC; the ***Public Health Course*** at USU; and, ***Autopsy*** at NNMC. Dr. Stocker has also served as a consultant for Pediatric and Pulmonary Pathology at the Armed Forces Institute of Pathology (AFIP); and, as a consultant for the Department of Defense on Legal Issues and Pediatric Pathology. He is also an Adjunct Professor of Pathology at the Georgetown University Medical School and Past President of the Society for Pediatric Pathology. His major interests include Pediatric Pulmonary Pathology, including acquired and congenital disorders such as Bronchopulmonary Dysplasia and Chronic Lung Disease of Premature Infants, Infantile Lobar Emphysema, Congenital Pulmonary Airway Malformation, and Sequestrations of the Lung.

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Pediatrics - School of Medicine.

***Departmental Activities*.**

The Department of Pediatrics Education Section Continues to Offer the Military Medical Humanitarian Assistance Course (MMHAC) to Uniformed Primary Care Providers from Around the World. Under the direction of its **Executive Director, Colonel Jeffrey Lee Longacre, MC, USA, Assistant Professor, USU SOM Department of Pediatrics,** this course provides military health care workers with the knowledge and skills essential for the care of civilian populations during complex humanitarian crises. The two-day course emphasizes the perspective of population health and vulnerable populations in an austere environment of natural or man-made disasters. Unique interactive scenarios, taken from actual experiences of the instructors, bring attention to the strengths and weaknesses of the myriad of responders to any crisis. *The course is sponsored by the USU Department of Pediatrics and accredited for continuing medical education (CME) credit by the USU Office of Continuing Education for Health Professionals*.

Pediatrics Department Establishes the James W. Bass Visiting Professorship. On September 23, 2004, the USU Department of Pediatrics sponsored the inaugural James W. Bass Visiting Professorship. The intent of the Bass Visiting Professorship is to carry forward and honor the vision of the late Dr. Bass (Colonel, Medical Corps, United States Army), the first Department Chair for Pediatrics at USU, through advancing military pediatric education and fostering collaboration among pediatric healthcare providers. As a master clinician, superb educator, and revered scholar, Dr. Bass was a pioneer in military pediatrics and was recognized as one of the pillars upon which the military medical profession was built. His vision and achievements in military pediatrics created the foundation upon which USU's excellence in academics and research continues to flourish. As an annual tribute to Dr. Bass, a distinguished pediatric clinician, scientist, or educator will be invited to one of the Air Force, Army, or Navy Pediatric Training Sites as a Visiting Professor. The host site will rotate among the Pediatric Training Programs in all three Services to foster its proliferation as the premier tribute to a legend in military pediatrics and academic medicine. The Visiting Professor will provide educational forums at the host site to include, but not be limited to, pediatric grand rounds, in-patient clinical rounds, and clinical or research seminars for medical students, residents, fellows, and staff physicians. Following a rigorous review process, the First Annual James W. Bass Visiting Professorship was awarded to Colonel Errol R. Alden, MC, USA (Retired), Executive Director, American Academy of Pediatrics. Dr. Alden is also a past Chair of the USU Pediatrics Department. Dr. Alden was the featured speaker at Pediatric Grand Rounds, discussing *The State of Pediatrics in the United States: A Growing Field, A Changing Practice*. He also participated in a research symposium that included presentations by Pediatric Fellows from the five USU Pediatric Subspecialty Fellowships and an evening dinner-seminar program that included recognition of the long history of dedicated and committed medical educators and trainees who were instrumental in developing the quality Pediatric Training Programs that exist today.

Individual Contributions.

Ildy M. Katona, M.D., Professor of Pediatrics and Medicine, Chair, USU SOM Department of Pediatrics, retired from 23 years of active duty as a Navy Captain, in October of 2003. Following a national search, on November 14, 2003, the Dean of the SOM announced that Doctor Katona had been selected to serve as the Chair of the USU SOM Department of Pediatrics. During the past year, Doctor Katona has served in the following positions of recognition: as a Clinical Guest Scientist, Pediatric Rheumatology, National Institute of Arthritis, Musculoskeletal, and Skin Diseases, National Institutes of Health; a Member of the Residency Review Committee (Pediatrics) of the Accreditation Council of Graduate Medical Education; an Associate Editor for the Journal of Immunology; and, a Visiting Professor and Rheumatology Grand Rounds Speaker, presenting *The Spectrum of Streptococcal-Related Diseases: Rheumatic Fever and Beyond* at the Hospital for Special Surgery and Rockefeller University, New York, New York.

Kathleen B. Madden, Ph.D., Research Assistant Professor, is a Co-Investigator on a five-year, $1.25 million National Institutes of Health (NIH) grant awarded to **Terez Shea-Donohue, Ph.D., Research Professor of Medicine, USU, and Research Physiologist, United States Department of Agriculture (USDA)**, entitled, *GI Nematodes and Gut Functional Responses to Inflammation*. Doctor Madden's primary research interests are in the field of immuno-parasitology, with special emphasis on cytokine regulation of the host's response to infection with gastrointestinal nematodes. Doctor Madden works in collaboration with **Ildy M. Katona, M.D., Professor of Pediatrics and Medicine, and Chair, USU SOM Department**

of Pediatrics, delineating cytokine regulation of mucosal mast cell hyperplasia; and, she also works with Doctor Terez Shea-Donohue investigating neuroimmune regulation of gut epithelial cell function.

Merrily P.M. Poth, M.D., Professor, USU SOM Department of Pediatrics, was responsible for on-going contributions, during the past year. She works on a research project, *Physiologic and Endocrine Correlates of Overweight and Obesity in African Americans and Caucasians*, as a co-investigator with **Patricia A. Deuster, Ph.D., Professor, USU SOM Department of Military and Emergency Medicine,** Principal Investigator; the project was funded by the Department of Defense Peer Review Projects, for approximately $240,000 per year for four years, with funding beginning in October of 2003.

(*See Section II, Military Unique Curriculum, Third Year Curriculum, for additional information on the third-year clerkships sponsored by the Department of Pediatrics.*)

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Pharmacology - School of Medicine.

Departmental Activities.

Importance and Significance of Research Programs in the Department of Pharmacology. The Department of Pharmacology's areas of research are important in the development of the discipline of pharmacology and for biomedical education. The Department's research strengths are in the major areas of molecular and cellular neuropharmacology and signal transduction mechanisms. The Department expects these areas will produce many valuable insights and are most likely to prove to be fruitful topics for continued research concentration. ***These areas also have implications for military medicine.*** Extreme and rapid changes in the environment are a frequent feature on the battlefield. Department studies explore the molecular, cellular, and systems implications of changes in the chemical or physical environment of an organism. These basic studies on the mechanisms underlying cellular adaptations may lead to ways of reducing the negative consequences of such adaptations while retaining the valuable features of adaptations enhancing survival.

Individual Research in the areas of Molecular and Cellular Neuropharmacology and Signal Transduction Mechanisms.

Suzanne B. Bausch, Ph.D., Assistant Professor, USU SOM Department of Pharmacology, continues her studies on *Synaptic Alterations in Epilepsy*. Doctor Bausch's research is made possible by funding from the National Institutes of Health (NIH), *Axonal Sprouting of GABAergic Neurons in Epileptogenesis*, the Epilepsy Foundation, *Activity and NMDA Receptor Activation in Epileptogenesis*, and the Department of Defense Brain and Spinal Cord Injury Program (DBSCIP), *Glutamate Receptors in Epileptogenesis*.

Beata Buzas, Ph.D., Research Assistant Professor, along with Doctor Brian Cox, addresses studies on the *Regulation of Opioid Systems in Pain, Injury, and Drug Tolerance*. Doctor Buzas research is made possible by funding from the Department of Defense Brain and Spinal Cord Injury Program (DBSCIP), *Neurochemical m/Medicators in Penetrating Brain Injury*, and the Defense/Veterans Head Injury Program, *Opioid Peptides and Oxidative Stress*.

Thomas E. Cote, Ph.D., Associate Professor, USU SOM Department of Pharmacology, focuses his studies on *RGS Proteins and Regulation of Opioid Receptor Signaling*. In the area of Signal Transduction Mechanisms, Doctor Cote studies *RGS Proteins and Regulation of Opioid Receptor Signaling*.

Brian M. Cox, Ph.D., Professor and Chair, USU SOM Department of Pharmacology, along with Doctor Buzas, addresses studies on the *Regulation of Opioid Systems in Pain, Injury, and Drug Tolerance*. Doctor Cox's research is made possible through funding from the National Institutes of Health (NIH).

Jeffrey M. Harmon, Ph.D., Professor, USU SOM Department of Pharmacology, continues his studies on *Regulation of Glucocorticoid Receptor Expression*.

J. Brian McCarthy, Ph.D., Assistant Professor, USU SOM Department of Pharmacology, focuses on both the *Mechanism of Structural Plasticity in the Brain* and the *Regulation of Synaptic Receptor Targeting*. Doctor McCarthy's research on the *Development of Dendritic Protein Synthetic Components*, is made possible through funding from the National Institutes of Health.

Aviva J. Symes, Ph.D., Associate Professor, USU SOM Department of Pharmacology, focuses his research on *Cytokine Regulation of Neuronal Gene Expression*. The Department of Defense Brain and Spinal Cord Injury Program (DBSCIP) funds Doctor Symes's research on *Molecular Mechanisms of TGF-beta Signaling in Glial Scar Formation after CNS Injury*. The National Institutes of Health (NIH) funds his research on *Cytokine Regulation of VIP Gene Expression*; and, the Christopher Reeves Paralysis Foundation funds his study on *The Role of Smad3 in Glial Scar Formation After Spinal Cord Injury*.

The research programs of **Doctors Bausch, Cote, Cox, Harmon, McCarthy** and **Symes** address issues relating to adaptations of the nervous system following changes in activity associated with an altered cellular environment or with application of external stimuli, injury, or other stresses. Doctor Bausch's electrophysiology laboratory examines various aspects of synaptic adaptation following seizures. Doctor Bausch's laboratory is examining structural adaptations in GABA and Glutamate synapses in the hippocampus, following repeated episodes of seizure activity. Doctor J. Brian McCarthy's laboratory investigates the targeting of metabotropic glutamate receptors, identifies sorting signals, investigates the hormonal regulation of structural modification in the nervous system, and explores the role of local protein synthesis in dendrites toward synaptogenesis in the hippocampus.

The molecular mechanisms underlying neural injury are also studied in the laboratories of Doctors Aviva Symes and Brian Cox. The Symes and Cox laboratories examine the release of cytokines in response

to neural injury and their roles in the regulation of expression of neuropeptides. Doctor Symes's laboratory explores factors regulating the expression of vaso-active intestinal polypeptide (VIP) in the brain resulting from neural injury. Doctor Cox's laboratory studies the expression of endogenous opioids and their relevance to the control of pain and inflammation following injury to the nervous system. The Cox and Cote laboratories are also studying adaptations in opioid peptide and receptor function related to chronic drug exposure.

Impaired function of neurotrophins and oxidative injury associated with hyperglycemia have been demonstrated. Doctor Harmon is studying the function of glucocorticoid receptors in the central nervous system. Doctor Reid examines factors controlling differentiation of neural precursor cells during neural development. Diseases that affect nerve cells often result in permanent, life-altering disabilities. More than 5,000,000 Americans are currently afflicted by a neurodegenerative disorder. In peacetime, over 8,000 Americans with traumatic brain injury (TBI) are admitted to military and veterans hospitals. ***In combat, traumatic brain injury accounts for at least 14 percent of surviving casualties and a disproportionate amount of acute and long-term combat casualty care resources. Understanding the genes that control neuronal generation and specification in the central nervous system would likely figure prominently in treatments aimed at replacing damaged nerve cells.***

These research programs relate to issues of critical importance to health care in a military environment. Seizure generation, impairment of learning and/or memory, and neurodegeneration are frequent consequences of accidental and battlefield neural injuries. Improved understanding of these events should lead to more effective therapies. These studies can be of great benefit to military personnel who are at increased risk of sustaining a brain injury, during the performance of their duties. Defining the mechanisms, that control brain development and brain formation, is critical to our understanding of normal developmental processes and may be a key to treating Alzheimer's and Parkinson's Disease. Collectively, these studies of adaptations of the nervous system, following changes in the neuronal environment, indicate the wide range of adaptive processes, that can occur in the nervous system, and point the way to potential novel therapies.

Doctors Harmon, Symes, and Cote are actively involved in addressing aspects of the function of critical cellular transduction systems. Doctor Harmon's laboratory is exploring the role of abnormalities in glucocorticoid receptor expression and/or function in impaired function of the hypothalamic-pituitary adrenal axis and in resistance to steroid therapy in cancer.

Doctor Symes is exploring the control of gene transcription in the nervous system by cytokines. These studies are beginning to elucidate fundamental changes in neural function that are induced by enhanced cytokine expression in neural injury.

Doctor Cote studies the role of GTP-binding proteins (G proteins) that mediate the actions of a very large number of neurotransmitters and hormones utilizing G protein coupled receptors (GPCR). Understanding the role of a novel family of G protein regulator molecules may lead to new understanding of the regulation of cell function by GPCR in general. ***These studies also have specific application to studies of tolerance and dependence to opiate drugs*** being studied in the laboratories of Doctors Cote and Cox.

These studies have important implication for the understanding of regulators of biologic functions at the molecular, cellular, and biological systems levels. ***Individual projects provide insight into the adaptive responses of the nervous system, the roles of glucocorticoids in post-traumatic stress disorders, and on cell communication and cell death in relation to the treatment of some cancers.***

The faculty members of Pharmacology consistently publish in peer-reviewed journals, serve as invited speakers at national and international meetings, and contribute substantial professional service at area High Schools, on boards of professional associations and societies, and as mentors and consultants in Summer Research Internship in Biological Sciences Programs.

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Preventive Medicine and Biometrics - School of Medicine.

***Departmental Activities*.**

The Division of Aerospace Medicine has been providing course work in the area of Aviation Physiology for the past five years as a specialty track in the Master of Public Health Program offered by the Department of Preventive Medicine and Biometrics. In addition to ***Aerospace Operational Physiology I*** and ***Aerospace Operational Physiology II***, ***Human Factors in Aviation***, and ***Introduction to Risk Communication***, two electives are selected from among the following: *Special Topics in Aerospace Medicine*; *Aerospace Medicine in the Modern Age*; *Aerospace Exercise Physiology*; *Aerospace Performance & Health*; *Joint Medical Operations and Humanitarian Assistance*; and, *Health Effects of Ionizing/Non-Ionizing Radiation*. This course of study prepares students not only for successful negotiation of the Aerospace Physiology Society's Board Certification Process, but also for a career in the military as an Aerospace Physiologist. Since 1999, nine students have completed the program and three students have audited it. With an additional physiologist expected from the Air Force in 2005, further expansion of offerings will continue.

Division of Environmental and Occupational Health*.** The Environmental and Occupational Health (EOH) Division is responsible for the programs leading to the Ph.D. in Environmental Health Science as well as the Environmental and Occupational Health and Health Physics Master of Science in Public Health (MSPH) Degrees. The first PH.D. in Environmental Health Science was granted in May of 2003. Two active duty Naval officers are currently enrolled in the Ph.D. Program; two active duty officers (1 Navy, 1 Army) will begin this Ph.D. Program in August of 2005. The Master of Science in Public Health (MSPH) Program has graduated eight degree candidates between 2000 and April of 2005. Thirteen Army, Navy, and Air Force officers are currently enrolled in the Environmental and Occupational Health and the Health Physics specialties in the MSPH Program; two of these students are expected to graduate in 2005. The students and program faculty work closely with the Services and other Federal and international organizations to identify and address current needs for operational forces and emergency responders. The EOH faculty continue to provide support for the United States Marine Corps Chemical and Biological Incident Response Force (CBIRF), which includes formal classroom and laboratory training in gas chromatography/mass spectrometry. The support also provides CBIRF with continuing field-training experience and technical expertise during live agent training exercises and during times of incident response. The Division's role in military relevant research has rapidly expanded. ***Collaborative efforts involving rapid field detection of chemical warfare agents have been established with **the United States Marine Corps**, Marine Corps Systems Command, CBIRF; **the United States Army**, Soldier Biological Chemical Command, Medical Research Institute for Chemical Defense, Center for Environmental Health Research; **the Federal Bureau of Investigation**; and, **internationally** with the Defence Research and Development Canada - Suffield, and the DSO Laboratory Singapore.

The Division of Epidemiology & Biostatistics. The Division of Epidemiology and Biostatistics had a number of major accomplishments in the areas of teaching and research, during the past year, despite a shortage of personnel. **Colonel Robert J. Lipnick, ScD, MS, USA, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics and Director, Epidemiology and Biostatistics Division,** served as ***Course Director for Introduction to Epidemiology and Epidemiologic Methods***. He also deployed to Algeria, in April of 2004, as a Course Co-Director and Lecturer in support of the DoD Expanded International Military Education and Training Program. **Ann I. Scher, Ph.D., Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics,** taught ***Advanced Epidemiologic Methods***, in the Spring of 2004. Her research focus is on the Epidemiology of Chronic Pain Disorders. She recently published articles in the Journal of Neurology on caffeine and chronic headache and on the role of cardiovascular risk factors and migraine headache. She presented at the American Neurological Association Annual Meeting on a gene association study. **CAPT David Trump, MD, MPH, MC, USN, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics (PMB), and Director, SOM Education Programs for the Department of PMB,** continued to lead PMB's efforts to web-enhance learning and assessment in the SOM PMB curriculum. He also led a significant effort to assess the competencies expected of PMB graduates against the Core Competencies for Public Health Professionals developed by the Council on Linkages Between Academia and Public Health Practice. **Dechang Chen, Ph.D., Assistant Professor, USU SOM Department of PMB,** served as ***Course Director for Biostatistics II***. He continued his very active research program in microarray and spatial data analyses funded, in part, by a National Science Foundation grant. **Tzu-Cheg Kao, Ph.D., Professor, USU SOM Department of PMB,** continued to serve as ***Course Director for Biostatistics III*** and as a biostatistical consultant on a number of on-going research efforts. He was elected as a Fellow of the American College of Epidemiology and appointed as a member of the United States Military Cancer Institute Scientific Review Committee. **Lieutenant Colonel Michael D. Lewis, MPH, MC, USA, Assistant Professor, USU SOM Department of PMB,** joined the division in August of 2004; and, he has taken over the responsibility for teaching epidemiology for the first-year medical students. He is actively engaged in researching the epidemiology of scrub typus in the Maldives; and, he recently had an article published concerning an outbreak of typhoid fever in Nepal.

The Division of Tropical Public Health. In the Division of Tropical Public Health, **Donald R. Roberts, Ph.D., Professor, Professor USU SOM Department of Preventive Medicine and Biometrics,** continues several lines of funded research, including a National Institutes of Health/National Science Foundation research program, in Belize, on assessing the impact of anthropogenic environmental change on malaria and malaria vector ecology. A NASA-funded program to apply geographic information systems (GIS) and remote sensing technologies to the study of vector-borne diseases is ending, in 2005. A National Institute of Health (NIH)-funded program to screen experimental chemicals for use in malaria control is now in its second of five years of funding.

The Occupational and Environmental Medicine Residency Advisory Committee. Doctor William N. Yang serves as the Chair of the Occupational and Environmental Medicine Residency Advisory Committee (OEMRAC). This residency is one of 65 physician training programs in the National Capital Consortium (NCC). Doctor Yang is employed by the Emory Clinic, in Atlanta, Georgia, and serves primarily with Coca Cola Inc. providing Occupational Medicine clinical training in Atlanta and consultative services worldwide for Coca Cola, Inc. He was invited to speak at an International Meeting of the American College of Occupational and Environmental Medicine on water sources and bioterrorism, in Kansas City, Missouri, in May of 2005. Doctor Yang will continue to oversee two meetings per year of the OEMRAC, which provides oversight and guidance to the residency staff. The OEM Program had six

graduates in June of 2004: three Army officers; and, three Navy officers. During the Summer of 2004, all six graduates were recommended to the American Board of Preventive Medicine (ABPM) as being ready to be considered for eligibility for taking the Board Examination in the ABPM Specialty Area of Occupational and Environmental Medicine, in November of 2004, with results available, in early 2005.

Individual Contributions.

Deborah C. Girasek, MPH, Ph.D., Associate Professor, USU SOM Department of Preventive Medicine and Biometrics, also serves as the Director, Division of Social and Behavioral Sciences; and, Dr. Girasek was promoted to Associate Professor during the past year. This year was also the first year of her NIH-funded investigation into *Patterns of Alcohol Use Among Airline Passengers*. Dr. Girasek co-authored a book chapter on *Home Injuries* for a text that will be published by the American Public Health Association. She was also invited to write a chapter on *Risk Communication* that will be included in Jossey Bass' forthcoming, Handbook of Injury Prevention. Dr. Girasek was the second speaker invited to present a seminar on the *Safety Matters Series*, a program of the Safe USA Partnership Council. Safe USA is a partnership of public agencies and private organizations that are dedicated to advancing injury prevention nationally. The students in Dr. Girasek's ***Program Planning and Development Course*** conducted a multifaceted needs assessment in support of Infection Control efforts at the National Navy Medical Center's Neonatatal Intensive Care Unit.

Richard C. Palmer, Jr., DrPH, MPH, Assistant Professor, USU SOM Department of Preventive Medicine and Biometrics, was selected as an active member of the United States Military Cancer Institute (USMCI). Dr. Palmer will be leading investigations that will focus on cancer prevention and control within the Military Health System. In the Fall of 2004, Dr. Palmer was named a Cancer, Culture, and Literacy Fellow and was invited to participate in a week-long workshop that examined the role of culture and literacy on cancer outcomes. Dr. Palmer also submitted a Concept Award proposal entitled, *Exploration of Social Contextual Factors that Influence Breast Cancer Disparity*, to the Congressionally Directed Medical Research Programs. This grant will attempt to identify why certain groups of women delay in having regular mammograms.

(*See Section II, RESEARCH CENTERS AND PROGRAMS, The USU School of Medicine Department of Preventive Medicine and Biometrics, Graduate Education in Preventive Medicine and Public Health, and the Centers for Preventive Medicine and Public Health, and Section IV, for additional information on the Department.*)

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Psychiatry - School of Medicine.

Center for the Study of Traumatic Stress - Faculty Contributions.

Robert J. Ursano, MD., Professor and Chair, USU SOM Department of Psychiatry, Director, USU Center for the Study of Traumatic Stress (CSTS), chaired the American Psychiatric Association Work Group on Acute Stress Disorder and Post Traumatic Stress, which published the 13th APA practice guideline, ***Practice Guideline for the Treatment of Patients with Acute Stress Disorder and Posttraumatic Stress Disorder***, in November of 2004. During an interview with Psychiatric News, Dr. Ursano noted that the guideline is built from the best evidence-based and clinical-practice knowledge that one could ever imagine assembling. The work group reviewed hundreds of articles and research on posttraumatic stress disorder and acute stress disorder in order to publish the 13th APA practice guideline. Dr. Ursano and his CSTS faculty published numerous articles and chapters in peer-reviewed publications throughout the past year.

Colonel Charles C. Engel, Jr., MC, USA, Associate Professor, USU SOM Department of Psychiatry, Director, Center for Deployment Health and Assistant Chair for Research, is studying improving behavioral and rehabilitative elements of primary care, particularly in the occupational health care setting. Doctor Engel has multiple projects focusing on medically unexplained physical symptoms in the veteran population, primary care aspects of environmental risk communication, and evidence-based clinical practice guideline development and implementation. His research is funded by the National Institutes of Health, the Centers for Disease Control and Prevention, the Department of Defense, and the Department of Veterans Affairs. Dr. Engel published 13 articles and book chapters in peer-reviewed publications, during 2004.

Carol S. Fullerton, Ph.D., Research Associate Professor, USU SOM Department of Psychiatry, Scientific Director of the Center for the Study of Traumatic Stress (CSTS), and Dr. Ursano published Bioterrorism: Psychological and Public Health Interventions, with the Cambridge University Press, London, in 2004 (recently identified for translation into Japanese in June of 2005). This publication adds to the series on Trauma and Terrrorism published, during 2003: Trauma and Disaster Responses and Management, American Psychiatric Publishing Inc., Washington, D.C.; and, Terrorism and Disaster: Individual and Community Responses to Extraordinary Events, Cambridge University Press, London. A new text on Disaster Psychiatry is underway and projected to be published in 2006. In September of 2004, Dr. Fullerton's work, *Acute Stress Disorder, Post Traumatic Stress Disorder, and Depression in Disaster or Rescue Workers*, was the lead article in the American Journal of Psychiatry.

CAPT Thomas Grieger, MC, USN, USU SOM Class of 1987, Associate Professor, USU SOM Department of Psychiatry, Assistant Chair for Research and Assistant Chair of Graduate Medical Education, is conducting surveillance of psychiatric problems among battle injured soldiers treated at the Walter Reed Army Medical Center (WRAMC), in Washington, D.C. These soldiers receive a psychiatric evaluation while in the hospital and follow-up evaluations three and six months after discharge. Preliminary findings show highly variable courses of post traumatic stress disorder (PTSD) and depression in this population. He is actively collecting data on the psychological effects on health care providers at the Naval Medical Center in San Diego, California, with respect to their deployments to Iraq and Afghanistan;

and, he is embarking on a research project that will examine the effects of working with severely injured and disfigured personnel on the health care providers at the National Naval Medical Center in Bethesda, Maryland, and at WRAMC. Dr. Grieger has continued to analyze findings from his surveillance of the Pentagon staff following the September 11, 2001 terrorist attack. Preliminary analysis shows that rates of PTSD at two years following the attack were twice as high among those who were present, during the attack, and four times higher among those who were also injured, during the attack. Results were presented at the American Psychiatric Association, International Congress of Military Medicine, and the International Society of Traumatic Stress Studies Scientific Meetings; this work is undergoing peer review for publication and was also reported in the Washington Post on September 15, 2004, *Research Measures Emotional Toll of 9/11: Depression Among Major Residuals*. Dr. Grieger and his colleagues were published in peer-reviewed publications, throughout 2004.

Colonel Molly J. Hall, MC, FS, USAF, Associate Professor, USU SOM Department of Psychiatry, Director, Bioterrorism Education Project, Assistant Chair for Medical Student Education, has conducted extensive educational consultation on the psychological impact of disaster, terrorism and bioterrorism. She co-authored multiple articles on the psychological impacts of bioterrorism and provided teaching and training to multiple State and Federal agencies, including the Central Intelligence Agency, the Maryland State Office of Public Health Preparedness, and the Arizona State Emergency Management Authority. She provided ongoing consultation to the Maryland, Virginia, Washington D.C. Council of Government Bioterrorism Task Force, and The Animal Services Committee. And, in February of 2004, Doctor Hall was recognized by Representative Steve Israel as a Local Legend from New York; this is an honor bestowed upon women physicians who have demonstrated commitment, originality, innovation, or creativity in their field of medicine. The Local Legend recognition is a companion project to an exhibition created by the National Library of Medicine, entitled, *Changing the Face of Medicine: Celebrating America's Women Physicians*. In July of 2004, CSTS faculty led by Dr. Hall and Dr. Fullerton, convened a workshop on ***War Psychiatry Today: Lessons from OEF and OIF***. The workshop examined the experience and preparation of military physicians for combat support in the Global War on Terror. Workshop goals were to identify gaps in current medical training to better prepare physicians to give appropriate mental health care in light of the complexities posed by modern warfare; to understand the new challenges that modern warfare places on psychiatrists at all levels of care, from the combat zone through the return to the United States; and, to define needs for mental health support in the rehabilitation and reintegration of the wounded back into their units and society.

Captain Derrick A. Hamaoka, USAF, MC, Instructor, USU SOM Department of Psychiatry, was actively involved with projects throughout the CSTS and published multiple articles with his CSTS colleagues that were accepted by peer-reviewed publications.

He Li, M.D., Ph.D., Assistant Professor, USU SOM Department of Psychiatry, one of the Department's biological psychiatry researchers, published his findings in the Journal of Molecular Neurobiology, the Journal of Neuropsychopharmacology, and the Journal of Neuroscience, during the past year. Dr. Li's current research continues to be focused on examining the effects of stress-related neurochemicals on amygdala neurons and on synaptic transmission in the intra- and inter-amygdala neuronal circuitry. Over the course of the last several years, Dr. Li and his research group have developed and refined an animal model of post-traumatic stress disorder (PTSD) that allows the observation of cellular changes in learning and memory that may be altered when an animal is subjected to stress. Dr. Li and his group are now positioned to examine whether stress-related changes can be observed at the level of gene

expression in amygdala neurons. These findings have particular significance since PTSD costs Americans an estimated $45 billion per year (prior to 9/11) in hospitalizations, lost productivity, etc. More recently, threats of bioterrorism, the continuing conflicts in Iraq and Afghanistan and the recent Tsunami have increased the number of individuals exposed to episodes of traumatic stress. Current treatment options are limited and often accompanied by adverse side effects. The findings obtained from the animal model by observation at the cellular, molecular, and genetic levels have great potential to facilitate the development of improved treatment strategies for PTSD.

Doctor Elizabeth Osuch, Assistant Professor, USU SOM Department of Psychiatry, focused her research on the study of neurobiological and behavioral effects of exposure to extreme environmental stress. This includes functional and brain imaging studies in traumatized populations, such as people who have been in motor vehicle collisions. It also includes a major, new national initiative to develop a postmortem brain tissue collection for the study of the pathology of exposure to extreme stress. Dr. Osuch's research is funded by an R01 grant from the National Institute of Mental Health; the project studies traumatized populations, such as individuals who have been in motor vehicle collisions, using functional brain imaging to understand the neurological and physiological correlates of acute stress and post traumatic stress disorder.

Colonel E. Cameron Ritchie, MC, USA, Associate Professor, USU SOM Department of Psychiatry, was a student in the USU SOM Master of Public Health Degree Program, during 2003. Under the mentorship of USU CSTS faculty, Doctor Ritchie established an international presence working in Israel, Egypt, and Baghdad with State Department psychiatrists to improve mental health assessment and interventions following terrorism intrinsic to the Iraqi conflict. She coordinated a planning meeting held at USU with representatives from the State Department, the National Institutes of Mental Health, Substance Abuse and Mental Health Services Administration, the World Bank, and non-governmental relief organizations on the DoD mission and objectives for assisting in rebuilding the Iraqi Mental Health System. During January of 2005, USU was notified that Dr. Ritchie had received the AMSUS Porter Award for Psychiatry and the Bruno Lima Award from the American Psychiatric Association.

Nancy T. Vineburgh, Assistant Professor, USU SOM Department of Psychiatry, an expert in corporate health promotion and public education of mental health, directed the creation of an Office of Public Education and Preparedness (OPEP), under the USU Center for the Study of Traumatic Stress (CSTS), in June of 2003. The new office is charged with identifying programs and partnerships that will advance CSTS and USU's visibility, expertise, and funding for preparedness programs, especially in the workplace. Dr. Vineburgh published *The Power of the Pink Ribbon: Raising Awareness of the Mental Health Implications of Terrorism* in Psychiatry Interpersonal and Biological Processes, in the Summer of 2004, as part of a special edition devoted to the trauma and response of the 9/11 attacks.

(*See Section II, RESEARCH CENTERS AND PROGRAMS, USU SOM Department of Psychiatry and the Center for the Study on Traumatic Stress, for additional information on the faculty of the Department of Psychiatry*.)

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Radiology and Radiological Sciences - School of Medicine.

Individual Contributions.

James G. Smirniotopoulos, M.D., Professor of Radiology and Radiological Sciences, Neurology, and Biomedical Informatics, and Chair, Radiology and Radiological Sciences, developed the *MedPix* System to offer medical students, researchers and clinicians a descriptive on-line database housing medical case examples. The database provides a fully-functional archive of clinical photographs and radiologic images, primarily of abnormal and disease conditions. Today, there is a shared Internet teaching file filled with a variety of illustrated medical cases available to anyone interested in learning more about an affliction or in sharing information and images from cases they have seen. *MedPix* is now recognized as a powerful teaching tool for residents and the *MedPix* Program has received approval for providing on-line continuing medical education (CME) and continuing nursing education (CNE). The *MedPix* Program takes advantage of the *MedPix* Radiology Teaching File and provides one hour of Category 1 CME or 1.2 hours of CNE for every four *MedPix* cases. To date, *MedPix* has provided more than 4,000 hours of continuing medical education. USU now supports all of the DoD Diagnostic Radiology Residency Programs, by administering and hosting a common teaching file shared by all. *MedPix* has over 15,000 registered users, including active duty and civilian personnel world-wide, although registration is not required for simple case review. During 2004, the *MedPix* database was upgraded to include a secure web server for log-in and user administration; now *MedPix* routinely delivers more than one gigabyte of data each day to more than 7,000 unique web visitors. *MedPix* has delivered more than 20 million pages since September 3, 2000; it is one of the longest running *Case of the Week* programs in the world. The *MedPix* Teaching File is an essential part of the Radiology Residency certification process; and, it is housed and managed by the USU Radiology and Radiological Sciences Staff, led by Dr. Smirniotopoulos. *MedPix* supports this requirement for all of the DoD Radiology GME programs, to include: the Tripler Army Medical Center at Honolulu, Hawaii; the Madigan Army Medical Center in Takoma, Washington; the Naval Medical Center at San Diego, California; the combined Wilford Hall Air Force Medical Center and Brooke Army Medical Center Program in San Antonio, Texas; and, the new program at the Naval Medical Center in Portsmouth, Virginia. In February of 2005, the American College of Radiology signed a contract to use the patent-pending *MedPix* technology for its members.

Dr. Smirniotopoulos was appointed by **Doctor Winkenwerder, the Assistant Secretary of Defense for Health Affairs,** as the DoD Representative to the National Advisory Council for Biomedical Imaging and Bioengineering; in addition, this committee provides advice and consent for the newest component at the National Institutes of Health (NIH), the National Institute for Biomedical Imaging and Bioengineering. The USU President appointed Dr. Smirniotopoulos to Chair the USU Strategic Planning Committee. During 2004, the USU Strategic Planning process continued to move forward. The University Plan has now been complemented by documents from the SOM, the GSN, and AFRRI. All of these plans show concordance with the overall goals set for USU by the Department of Defense and the United States Congress. During 2004, Dr. Smirniotopoulos participated in 14 CME courses, including a two-week course in three European cities: the Azores, Portugal; Madrid, Spain; and, Vienna, Austria; and, he was a Visiting Professor at over 20 academic medical centers. At the world's largest Radiology meeting, the Radiological Society of North America, Dr. Smirniotopoulos served as faculty for three refresher courses and had two scientific exhibits.

Under the direction of **Dr. Maurice Reeder**, the Department of Radiology and Radiological Sciences completed an eight-week intensive course in Tropical Radiology called *Teach the Teachers in Tropical*

Imaging. This course was sponsored by Radiology's largest specialty organization, the Radiological Society of North America. The course was limited to eight African Radiologists, who will now return to their home countries of Nigeria, Uganda, and Madagascar to *spread the word* about Radiology in the diagnosis and management of Tropical Diseases.

Colonel David S. Feigin, MC, USA, Professor, USU SOM Department of Radiology and Radiological Sciences, has been a full-time faculty member, since 1997. He continues to teach in several post-graduate radiology courses and as a Visiting Professor at various university radiology departments. Dr. Feigin has served eight times as an Examiner for the Oral Examination of the American Board of Radiology. He holds professorships and teaches regularly at both George Washington University and Georgetown University. He also participates frequently in the education of military radiology residents in San Antonio, Texas, and physicians and nurses stationed in Korea and Europe.

Colonel Tim Sanders, USAF, MC, Assistant Professor, USU SOM Department of Radiology and Radiological Sciences, and Radiology Consultant to the Air Force Surgeon General, has been a member of the Department, since 2003. Dr. Sanders is a Musculoskeletal Radiologist and former Chair of Radiology at the Wilford Hall Air Force Medical Center.

Lorraine G. Shapeero, M.D., Associate Professor, USU SOM Department of Radiology and Radiological Sciences, and Director, of the Bone and Soft Tissue Sarcoma Program, the United States Military Cancer Institute (USMCI), was selected for the 2004 and 2005 Editions of Marquis' Who's Who in America; for the 2005 Edition of Marquis' Who's Who in the World; and, for the 2005 Edition of Who's Who in Science and Engineering. Dr. Shapeero was also an invited speaker at the International Skeletal Society; she serves on the Board of Directors of the Association of University Radiologists; and, she is a member of the Executive Committee of the Alliance of Medical Student Educators in Radiology. The mission of these organizations it to optimize the teaching, research, and clinical practice of radiology for radiologists, radiological scientists, residents, fellows, and medical students, in both military and civilian medicine. Dr. Shapeero also serves on the Editorial Board of Academic Radiology.

(*See Section I, Informatics - An Expanding and Essential Component of Education in the Health Sciences, for additional information on the Department of Radiology and Radiological Sciences*.)

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Surgery - School of Medicine.

***Departmental Background and Activities*.**

The ***USU Norman M. Rich Department of Surgery*** is comprised of a very talented, eclectic group of surgeons, who are involved in a variety of ways to provide extramural support for Clinical Services in the National Capital Area (NCA), and beyond. The faculty includes billeted Federal (civilian) and uniformed (active duty) officers, as well as, non-billeted members. The faculty can truly be described as *distinguished*.

Members of the faculty have achieved prominence in surgery; and, they are nationally and internationally recognized as surgical leaders. They have served as Chairmen of Surgery in a variety of hospitals; they have also served as Hospital Commanders; and, they have been Program Directors. One recently-retired member of the faculty was formerly the Dean of the College of Medicine at the University of Virginia. Another active member was formerly the personal physician to Ronald Reagan, Former President of the United States. The faculty has been responsible for writing and publishing extensively. In addition, the faculty actively supports a number of professional organizations; and, members of the faculty serve, or have served, in leadership positions in many of those organizations. The faculty, therefore, is uniquely able to serve as a most positive role model for medical students who are interested in pursuing the fine art and science of surgery. Together, the faculty is involved in clinical support, teaching, research, readiness, and administrative support.

Clinical Support. Faculty members are credentialed at a variety of Federal and civilian hospitals in the NCA and elsewhere. They see and treat patients, help to conduct clinics, and are engaged in all forms of inpatient and outpatient care. Selected examples of clinical activities include conducting endoscopic clinics, doing endoscopic surgery, manning breast clinics, chairing cancer committees, and performing endocrine surgery. It is estimated that the clinical activities of the Department's surgical faculty account for over $4,470,164 in savings to the Nation each year, as cost avoidance generated for the Department of Defense (*as documented in the USU 2004 Cost Avoidance Fact Sheet*); the Department of Surgery far outstrips all other USU SOM Departments in providing clinical services at the Military Treatment Facilities. The faculty participates in clinical activities in a variety of ways. At times, they are present in clinic as consultants to residents and students. At other times, they have primary responsibility for patients, with a busy in-patient service to manage. The Department has several faculty members who spend most of their clinical time at a local *Level 1* trauma center, MedStar; they have been most involved there, seeing and treating large numbers of trauma victims from the Washington Capital Area. Because of their presence at MedStar, the Department is able to rotate third-year medical students to the site, which gives them initial trauma-care experience. Also, residents from the Department's military centers go to MedStar for trauma experience. Several faculty members also have appointments at the National Institutes of Health (NIH).

Teaching. Medical education is a life-long process. In developing the Department's educational philosophy, primary consideration is given to curriculum, content and the amount of knowledge and skills that must be learned. In addition, the specifics encountered in a military-oriented medical school and the methods of transmitting this information are blended into the traditional medical school knowledge base. The overall purpose of the surgical education program is to help the students to become life-long learners, able to apply knowledge to chosen careers in surgery, or to relate learned surgical knowledge, in a comprehensive manner, to other chosen career fields. This is accomplished by providing opportunities to learn what is known and to identify that which is unknown. In addition, students are encouraged to acquire skills in order to critically appraise, honestly debate, and respectfully disagree on clinical and technological matters. The developed curriculum includes progressive clinical knowledge with the integration of basic science and translation research, which offers a comprehensive and balanced learning environment. The *Socratic* method of learning is presented in a collegial and supportive manner, with curricular emphasis on the development of problem-solving and critical thinking. Learning gaps are identified, highlighted and discussed in order to stimulate faculty motivation and refocus on current teaching methods.

Faculty members are first, and foremost, teachers. They are teaching at every level, including the first-year ***Anatomy Course***, the third-year ***Clinical Rotations***, the fourth-year ***Subspecialty Rotations***, the ***Internship and Residency Rotations***, and there is some faculty participation with ***Post-Residency***

Fellowships. Several faculty members have volunteered to be in mentoring programs for first and second-year medical students. Some faculty members are also mentoring residents in research projects. Approximately half of the instructors for this course have backgrounds in surgery. This particular course has served as a perfect opportunity to begin to explain the fine art and science of surgery to the students and to relate anatomy to clinical conditions. Because of this early engagement of medical students, the Department is able to see an increase in those who wish to choose surgery as their specialty, following graduation. Many of the faculty have participated, as well, in postgraduate courses, taught at both USU and outside of the University, including an extensive program of international courses. These courses have included ***Videoendoscopy***, ***Sentinel Lymph Node Biopsy***, ***Emerging Surgery Technology***, ***Surgical Ultrasound***, and ***Complex Laparoscopy***, etc. A recently instituted ***Course on Emergency War Surgery*** has been most successful in preparing Army surgeons, in Europe, for deployment to Iraq; and, the course has been taught in Wuerzburg and Heidelberg by **Doctors Hutton, Minken, Burris,** and **McHale**. This latest course continues the Department's tradition of taking education to uniformed physicians overseas, and by doing so, greatly enhancing their opportunities to keep abreast of new techniques. The USU National Capital Area Medical Simulation Center (SIMCEN) is headed by a member of the surgery faculty; he is recognized as a national leader in teaching through models and simulation. The Department continues to receive high interest, from outside of USU, in its educational endeavors at the SIMCEN and frequently welcomes international visitors. Such diverse topics as robotics, haptics, telemedicine, virtual reality, and computerization of medicine are addressed at the SIMCEN. The SIMCEN is where each third-year medical student is exposed to general surgery, beginning with the first day of the third-year ***General Surgery Rotation***. Each student is taught to do a surgery history and physical through the use of actors, videotapes and immediate feedback techniques; each is exposed to ultrasound principles, bronchoscopy, knot tying, resuscitation, and evaluation of the acute abdomen, etc. Following the first day at the SIMCEN, the third-year student has two days of hands-on surgery laboratory training, using a porcine live model under general anesthesia. The first day involves the abdomen, with a variety of procedures (splenectomy, gastrotomy, pyloroplasty, small bowel resection, and anastomosis, etc.); and, during the second day, the student is taught to insert a chest tube, perform a thoracotomy, a left pneumonectomy, and repair the aorta, etc. The faculty members all participate in this important three-day introduction to surgery.

Representing both the School of Medicine (SOM) and the University, the Department of Surgery has been actively involved in the development of the *Diploma in the Medical Care of Catastrophe* under the Auspices of the Apothecaries of London. This multi-disciplinary activity supports the SOM Dean's emphasis that the faculty should be a Community of Scholars. The examination is held at USU each Spring; until last September, the only recognized location, outside of London, for the examination. There are 33 Diplomats at USU. Related to the Anglo-American Exchanges and assisted by **Professor James Ryan of London**, who holds the first International Professorship at USU, there exists a Memorandum of Understanding between the Royal College of Surgeons of England and the Royal Defence Medical College with the USU Department of Surgery to conduct ***Definitive Surgical Trauma Skills***, with an average of three courses each year, in London, to prepare Military Surgeons for deployment to Afghanistan and Iraq.

Research. The faculty is involved in a number of large and important research projects, some of which have recently borne fruit in actual clinical application in wartime scenarios. The Department has been responsible for the development of novel, new products, which stop bleeding on the battlefield; and, which have been directly responsible for the saving of the lives of soldiers in Iraq. Many of the soldiers in Iraq are currently carrying ***QuikClot***, which was developed by several faculty members, in the USU Department of Surgery. Also, there are two large projects for the detection and treatment of breast cancer, one based at the Bethesda National Naval Medical Center (NNMC) and the other at the Walter Reed Army Medical Center (WRAMC), both are staffed and supported by the Department's faculty members. These large and

sophisticated projects are Federally funded and involve clinical patient care, basic science research, and genetics with dedicated laboratories and suites at Bethesda and WRAMC, offering excellent patient access and care. In addition, there is an internationally recognized and extremely successful program originating at the Walter Reed Army Medical Center, which addresses prostate cancer, the ***Center for Prostate Disease Research (CPDR)***; the CPDR is administered and staffed by faculty from the Department of Surgery. This effort to address prostate disease is Federally funded and has earned recognition by the national media for the Department and its faculty. The number and quality of papers produced by the CPDR is unparalled. The CPDR has a large, separate facility located in Rockville, Maryland, as well as a presence at WRAMC, NNMC, and USU. In other areas, as well, faculty members have achieved distinction, throughout the Nation, as leaders in research in their respective fields. **Dr. William Bolger**, for example, is known in sinus surgery for a procedure, which he invented, called *bolgerization*; he is a reviewer for five *ENT* journals, a member of a national *ENT* committee, and a member of the Board of Directors of the American Rhinologic Society. Besides the above-mentioned activity, other important clinical trials are being conducted by faculty members at the various hospitals, especially in colon cancer and venous diseases, etc.

Readiness. The faculty of Surgery is fully committed to ensuring and supporting Military Readiness, in a variety of ways. Some active-duty members have recently been deployed. Most faculty members are continuing to teach, or direct, ***Advanced Trauma Life Support (ATLS) Courses***. **Colonel David Burris, United States Army, is the Chief of the Military Region (XIII) of the American College of Surgeons Committee of Trauma (ACS-COT)** and oversees all ATLS in the military. **Dr. Mark Bowyer is the Air Force State Chairman in the AXS-COT and oversees ATLS for the Air Force and at USU**. ATLS teaches the medical students about proper trauma care and prepares them to go to the field and save lives. The faculty have been at the forefront of new and innovative ways to teach ATLS, using mannequins instead of animal models, through a very successful and on-going program. The Department averages about one ATLS Course every two, to three, months at USU. In addition, faculty members, at times, help to teach ATLS at outside courses, such as at NNMC and for other units deploying to combat situations.

Administrative Support. Faculty members have been most active in providing administrative services to the University. The Department has faculty members on the following USU committees: Admissions; Promotions; the Institutional Review Board; Curriculum; the Faculty Senate; and, the USU Space Committee. Currently, the Department has four members recently elected to the Faculty Senate, to include the Secretary. The Department of Surgery has faculty members who have conducted External Reviews of local residencies, as coordinated through WRAMC. Many of the Department faculty spend considerable time interviewing potential medical students; and, they work closely with the Promotions Committee to ensure that USU enrolls only the best and the brightest students. Faculty members continue to serve on search committees, to include those charged with the selection of Department Chairs. These administrative support roles are dynamic and changing; and, it is impossible to list every way in which the Department is involved. Suffice it to say, that on all fronts, the Department of Surgery is totally supportive of the USU community and continues to enthusiastically participate in the entire spectrum of research, teaching, clinical endeavors, medical readiness, administrative support and community service.

Individual Contributions.

Colonel David Burris, MC, USA, Associate Professor and Interim Chair, USU SOM Department of Surgery, received invitations to serve as a Visiting Professor at prestigious universities,

including Harvard and Stanford. He was also the Key Speaker at the Massachusetts Chapter of the American College of Surgeons. Dr. Burris has assumed the responsibility for the completion of the Combat Surgical Manual, which replaces the former NATO Handbook. In addition, Dr. Burris served as the co-editor of the Third United States Revision of Emergency War Surgery, published by the Border Institute, in late 2004. And, Dr. Burris is also the Chief Editor of the *Festschrift Papers*, which was published in the World Journal of Surgery, in the Spring of 2005.

In early January 2005, thirty-two students participated in an upper and lower limb trauma course geared toward the treatment of combat casualties. The Orthopedic Division of the USU SOM Department of Surgery, in conjunction with the USU Anatomical Teaching Laboratory, coordinated and conducted a highly successful course much appreciated by the attendees. The speakers, instructors, equipment, computers, and facilities provided maximum opportunities to apply external fixators and to contemplate care in theater. Dr. Burris stressed the on-going commitment of the Department of Surgery to developing courses and educational programs for the care of combat casualties since the earliest days of the Department, beginning with Dr. Norman Rich. A family of courses such as the ***Definitive Trauma Skills Course***, held in conjunction with the Royal College of Surgeons of England, the Trauma Refresher Course for Surgeons conducted by the United States Air Force, and the Advanced Trauma Operative Management Course of the American College of Surgeons have been developed through the participation and contributions of USU and military surgeons and their civilian colleagues. These courses cover every aspect of combat trauma care. As mentioned above, the latest updated version of War Emergency Surgery, was completed, during late 2004, and distributed. This text will be used as the focus to unify the ***Combat Casualty Care Courses*** conducted by the three branches of the Services into a standard modular course. The USU Department of Surgery takes great satisfaction in knowing that through these efforts, combat casualty care of surgical patients will continue to save many lives and limbs.

Norman M. Rich, M.D., FACS, Professor and Founding Chair, USU SOM Department of Surgery, joined 12 of the world's most prominent surgeons, on May 27, 2004, when he was named the Michael E. DeBakey Award recipient by the Michael E. DeBakey International Surgical Society. DeBakey, an internationally renowned cardiovascular surgeon, medical inventor, medical statesman, and teacher has trained thousands of surgeons, since 1948. In 1977, the Michael E. DeBakey International Surgical Society was founded with the goal of perpetuating DeBakey's vision through scholarship, training, and recognition. Dr. Rich was presented the award at the Society's 25th Congress, held in Houston, Texas, for his significant contributions to medicine and surgery over the past 40 years, to include the establishment of the Vietnam Vascular Registry and his service as the Chair of the Surgery Department at USU. In June of 2004, the 2nd Edition of Dr. Rich's textbook, Vascular Trauma in War and Peace, was published by W.B. Sanders Company.

A ***Festschrift*** in honor of Dr. Rich was held in conjunction with the USU Surgical Associates Day, on March 26-27, 2004. National and International Surgical Colleagues honored Dr. Rich for his 25 years of service to medical education and patient care as the first Chairman of the USU SOM Department of Surgery. Thirty contributors to the program documented the achievements of Dr. Rich in academics, research, and patient care; The World Journal of Surgery published these articles, in the Spring of 2005.

John F. Potter, M.D., Professor, USU SOM Department of Surgery, Director, United States Military Cancer Institute, was designated by the Deputy Assistant Secretary of Defense for Clinical and Program Policy, as the DoD Representative to the National Dialogue on Cancer (NDC). The NDC consists

of a group of delegates from academia, government, and the private sector; it is committed to advancing the cause of cancer research, prevention, and patient care.

J. Leonel Villavicencio, M.D., Professor, USU SOM Department of Surgery, was presented with the American Venous Forum's first Founder's Award. The award was given for *exceptional and tireless contributions to the American Venous Forum and to the welfare of patients with venous diseases*.

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ARMED FORCES RADIOBIOLGY RESEARCH CENTER
Publications Summary
2001-2004

Journal Articles

2004

Amundson SA, Grace MB, McLeland CB, Epperly MW, Yeager A, Zhan Q, Greenberger JS, Fornace AJ Jr (2004) Human *in vivo* radiation-induced biomarkers: gene expression changes in radiotherapy patients. Cancer Research 64(18):6368-6371.

Bentzel DE, Elliott TB, Keller CE, Brook I, Shoemaker MO, Knudson GB (2004) Antimicrobial therapies for Klebsiella pneumoniae infection in B6D2F1/J mice immunocompromised by use of sublethal irradiation. Comparative Medicine, 54(2):185-192.

Brook I, Elliott TB, Ledney GD, Shoemaker MO, Knudson GB (2004) Management of postirradiation infection: lessons learned from animal models. Military Medicine, 169(3):194-197.

Cole RB, Chau-Wen C, Boué SM, LeBlanc BW, Rodgers AH, Struck RF, Morgan LR (2004) Gas chromatography–electron ionization mass spectrometry and liquid chromatography–electrospray tandem mass spectrometry for determination of impurities in the anti-cancer drug isophosphoramide mustard. International Journal of Mass Spectrometry, 231:147-155.

Coleman CN, Stone HB, Moulder JE, Pellmar TC (2004) Modulation of radiation injury. Science, 304:693-694.

Jacobsen KO, Villa V, Miner VL, Whitnall MH (2004) Effects of anesthesia and vehicle injection on circulating blood elements in C3H/HeN male mice. Contemporary Topics in Laboratory Animal Science, 43(5):8-12.

Kyle RR, Via DK, Lowy RJ, Madsen JM, Marty AM, Mongan PD (2004) A multidisciplinary approach to teach responses to weapons of mass destruction and terrorism using combined simulation modalities. Journal of Clinical Anesthesia, (16):152-158.

Miller AC, Brooks K, Smith J, Page N (2004) Effect of the militarily relevant heavy metals, depleted uranium and heavy metal tungsten alloy, on gene expression in human liver carcinoma cells (HepG2). Molecular Cellular Biochemistry, 255:247-256.

Pamujula S, Graves RA, Freeman T, Srinivasan V, Bostanian LA, Kishore V, Mandal TK (2004) Oral delivery of spray dried PLGA/amifostine nanoparticles. Journal of Pharmacy and Pharmacology (56):1119-1125.

Singh VK, Seed TM, Kumar KS (2004) N-palmitoylation of the radioprotective domain of interleukin-1 affords inhibition of LPS-induced nitric oxide generation. Immunopharmacology and Immunotoxicology 26:193-202.

Stone HB, Moulder JE, Coleman CN, Ang KK, Anscher MS, Barcellos-Hoff MH, Dynan WS, Fike JR, Grdina DJ, Greenberger JS, Hauer-Jensen M, Hill RP, Kolesnick RN, Macvittie TJ, Marks C, McBride WH, Metting N, Pellmar T, Purucker M, Robbins ME, Schiestl RH, Seed TM, Tomaszewski JE, Travis EL, Wallner PE, Wolpert M, Zaharevitz Dl (2004) Models for evaluating agents intended for the prophylaxis, mitigation, and treatment of radiation injuries. Radiation Research, 162:711-728.

Waselenko JK, MacVittie TJ, Blakely WF, Pesik N, Wiley AL, Dickerson WE, Tsu H, Confer DL, Coleman CN, Seed T, Lowry P, Armitage JO, Dainiak N (2004) Medical management of the acute radiation syndrome: recommendations of the Strategic National Stockpile Working Group. Annals of Internal Medicine, 140(12):1037-1051.

Westphal CS, McLean JA, Hakspiel JS, Jackson WE, McClain DE, Montaser A (2004) Determination of depleted uranium in urine via isotope ratio measurements using large-bore direct injection high efficiency nebulizer-inductively coupled plasma mass spectrometry. Applied Spectroscopy, 58:1044-1050.

2003

Kiang JG, McClain DE, Warke VG, Krishnan S, Tsokos GC (2003) Constitutive NO synthase regulates the Na+/Ca2+ exchanger in human T cells: Role of [Ca2+]i and tyrosine phosphorylation. Journal of Cellular Biochemistry, 89:1030-1043.

Leggett RW, Pellmar TC (2003) The biokinetics of uranium migrating from embedded DU fragments. Journal of Environmental Radioactivity, 64:205-225.

Miller AC, Brooks K, Stewart M, Anderson B, Shi L, McClain D, Page N (2003) Genomic instability in human osteoblast cells after exposue to depleted uranium: Delayed lethality and micronuclei formation. Journal of Environmental Radioactivity, 64:247-259.

Morgan LR, Thangaraj K, LeBlanc B, Rodgers A, Wolford LT, Hooper CL, Fan D, Jursic BS (2003) Design, synthesis, and anticancer properties of 4,4'-dihydroxybenzophenone-2,4-dinitrophenylhydrazone and analogues. Journal of Medical Chemistry, 46:4552-4563.

2002

Elliott TB, Brooks I, Harding RA, Bouhaouala SS, Shoemaker MO, Knudson GB (2002) Antimicrobial therapy for *Bacillus anthracis*-induced polymicrobial infection in ^{60}Co gamma-irradiated mice. Antimicrobial Agents and Chemotherapy, 46(11):3463-3471.

2001

Kalinich JF, McClain DE (2001) Staining of intracellular deposits of uranium in cultured murine macrophages. Biotechnic and Histochemistry, 76(5-6):247-252.

Book Chapters

2004

Elliott TB (2003) Bacterial infection in irradiated mice: Therapy and prophylaxis (anthrax, a special consideration). In: Knobler SL, Lemon SM, Najafi M, Burroughs R (eds) *Chapter 2, Microbe Resistance, The Resistance Phenomenon in Microbes and Infectious Disease Vectors, Implications for Human Health and Strategies for Containment*, 64-73, Workshop Summary, Forum on Emerging Infections, Board on Global Health, Institute of Medicine. Washington, DC: The National Academies Press.

Kiang JG, McClain DE (2004) Heat stress. In: Combat Medicine. Basic and Clinical Research in Military, Trauma, and Emergency Medicine: 83-102, Totowa, NJ: Humana Press.

Pellmar TC (2004) Effects of radiation in combination with biological or chemical warfare agents. In: Public Protection from Nuclear, Chemical, and Biological Terrorism: Health Physics Society 2004 Summer School, 627-638, Gaithersburg, MD: Health Physics Society.

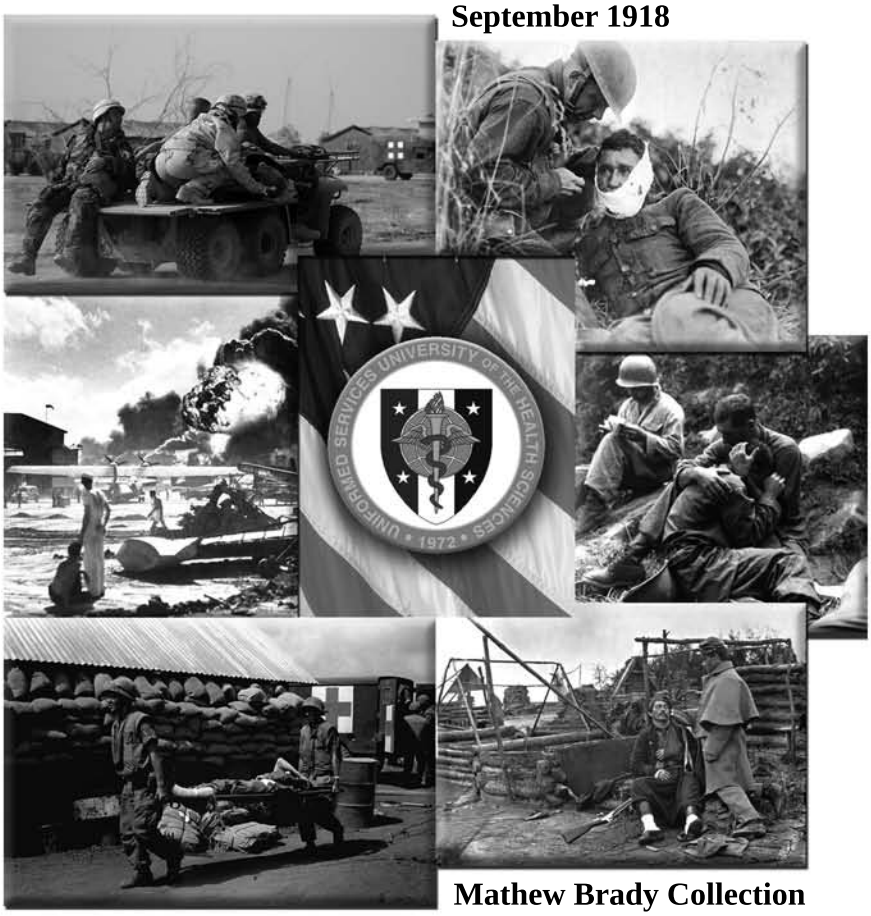
Pellmar TC (2004) Medical effects of ionizing radiation. In: Public Protection from Nuclear, Chemical, and Biological Terrorism: Health Physics Society 2004 Summer School, 503-511, Gaithersburg, MD: Health Physics Society.

Prasanna PGS, Blakely WF (2004) Premature chromosome condensation in human resting peripheral blood lymphocytes for chromosome aberration analysis using specific whole-chromosome DNA hybridization probes. In: Keohavong P, Grant SG (eds) Methods in Molecular Biology, 291: 49-57, Molecular Toxicology Protocols, Totowa, NJ: Humana Press.

Salter CA, Levine IH, Jackson WE, Prasanna PGS, Salomon K, Blakely WF (2004) Biodosimetry tools supporting the recording of medical information during radiation casualty incidents. In: Public Protection from Nuclear, Chemical, and Biological Terrorism: Health Physics Society 2004 Summer School: 481-488, Gaithersburg, MD: Health Physics Society.

Adrian Duff, WW I
September 1918

Operation Iraqi Freedom
March 30, 2003



Time Life
South Korea
1950

US Navy Archives, WW II
Pearl Harbor
December 1941

Mathew Brady Collection
Civil War, about 1864

Hutton-Getty Archives
Vietnam, 1966

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