# Center for the Study of Traumatic Stress







## ANNUAL REPORT 2009

# Report Documentation Page

*Form Approved*
*OMB No. 0704-0188*



| 1. REPORT DATE | 2. REPORT TYPE | 3. DATES COVERED |
|---|---|---|
| **2009** | | **00-00-2009 to 00-00-2009** |

| 4. TITLE AND SUBTITLE | 5a. CONTRACT NUMBER |
|---|---|
| **Annual Report 2009** | 5b. GRANT NUMBER |
| | 5c. PROGRAM ELEMENT NUMBER |
| 6. AUTHOR(S) | 5d. PROJECT NUMBER |
| | 5e. TASK NUMBER |
| | 5f. WORK UNIT NUMBER |
| 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)<br>**Uniformed Services University of the Health Sciences,Center for the Study of Traumatic Stress,4301 Jones Bridge Road,Bethesda,MD,20814-4799** | 8. PERFORMING ORGANIZATION REPORT NUMBER |
| 9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) | 10. SPONSOR/MONITOR'S ACRONYM(S) |
| | 11. SPONSOR/MONITOR'S REPORT NUMBER(S) |

12. DISTRIBUTION/AVAILABILITY STATEMENT
**Approved for public release; distribution unlimited**

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

| 16. SECURITY CLASSIFICATION OF: | | | 17. LIMITATION OF ABSTRACT | 18. NUMBER OF PAGES | 19a. NAME OF RESPONSIBLE PERSON |
|---|---|---|---|---|---|
| a. REPORT | b. ABSTRACT | c. THIS PAGE | | | |
| **unclassified** | **unclassified** | **unclassified** | **Same as Report (SAR)** | **28** | |

**A number of our research projects are combining psychosocial, epidemiologic and neuroscientific methodologies that will lead to a better understanding of the vulnerability, protective factors and treatments for trauma disorders. This approach — from laboratory to bedside to bench — will drive both short and long-term objectives for our involvement in U.S. Army STARRS (Studies to Assess Risk and Resilience in Service Members).**


### Acknowledgements

The Center for the Study of Traumatic Stress (CSTS) would like to acknowledge and thank each of these organizations for their continued support, guidance, and leadership throughout the past year.

- Uniformed Services University of the Health Sciences
- Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury
- The Henry M. Jackson Foundation for the Advancement of Military Medicine
- The National Center for PTSD
- Deployment Health Clinical Center


# *From the CSTS Director: Robert J. Ursano, M.D.*

**In recognition of the rise in suicide and behavioral health problems among service members who have served in Iraq and Afghanistan, the National Institute of Mental Health (NIMH) awarded CSTS an unprecedented grant of $50 million to assess and develop scientific approaches to reverse this trend.**

Robert J. Ursano, M.D.
Professor and Chairman
Department of Psychiatry
Uniformed Services University
Director, Center for the Study
of Traumatic Stress

*Dear Colleagues and Friends,*

2009 has been a year of extraordinary growth for the Center for the Study of Traumatic Stress (CSTS) due in large part to the confluence of an issue of national importance, and our Center's expertise to address this issue and help provide needed solutions. In recognition of the rise in suicide and behavioral health problems among service members who have served in Iraq and Afghanistan, the National Institute of Mental Health (NIMH) awarded CSTS an unprecedented grant of $50 million to assess and develop scientific approaches to reverse this trend. In coordination with the Secretary of the Army, the Vice Chief of Staff of the Army, the Surgeon General of the Army, and NIMH, CSTS is positioned to lead an interdisciplinary team including prominent researchers from Harvard, Columbia and the University of Michigan to support the U.S. Army's advancement of trauma knowledge and trauma informed care for our nation.

Since the Center's establishment in 1987 to address Department of Defense (DoD) concerns around traumatic exposure to war, operations other than war, weapons of mass destruction, natural disasters and traumatic events such as accidents on land, sea and air, CSTS has shaped the landscape of disaster and military psychiatry and bridged these disciplines to inform planning, response and recovery of public health threats or recovery from pandemic and H1N1 outbreaks.

As part of the Department of Psychiatry of Uniformed Services University (USU), CSTS also has examined traumatic stress through laboratory research on animals and humans. This pioneering work in neuroscience and the neurobiology of traumatic stress resulted in the Center's recent identification of a potential biomarker for post traumatic stress disorder (PTSD), a protein and its associated gene known as p11. These findings have important implications for prevention and treatment of PTSD and other trauma-related disorders that face our service members and nation.

As you will read in the following pages, CSTS is on the cutting edge of integrating basic science and clinical science to better understand the effects of stress and trauma. A number of our research projects are combining psychosocial, epidemiologic and neuroscientific methodologies that will lead to a better understanding of the vulnerability, protective factors and treatments for trauma disorders. This approach — *from laboratory to bedside to bench* — will drive both short and long-term objectives for our involvement in U.S. Army STARRS (Studies to Assess Risk and Resilience in Service Members).

As 2009 comes to a close, our Center's strength to integrate trauma research across genes, brain, individual, family, community and policy, and our strong collaborative networks will assist us in helping the U.S. Army, our expanded military community, and our nation find and apply evidence-based approaches and treatments to prevent and minimize the impact of


In coordination with the Secretary of the Army, the Vice Chief of Staff of the Army, the Surgeon General of the Army, and NIMH, CSTS is positioned to lead an interdisciplinary team including prominent researchers from Harvard, Columbia and the University of Michigan to support the U.S. Army's advancement of trauma knowledge and trauma informed care for our nation.

traumatic disorder from depression, PTSD, substance abuse, family violence and traumatic brain injury (TBI) to support the psychological health and resilience of our military and civilian communities.

This CSTS Annual Report communicates our story and 2009 highlights through conversations with our leadership team. We wish to acknowledge the many sources of support through national and federal organizations, academic and scientific collaborations and the many friends of our Center whose interest in and support of our work is greatly valued and appreciated.

## History

The Center was established in 1987 to address concerns of the DoD around the psychological impact and health consequences 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.

The Center, prior to Desert Storm, conducted pioneering research on exposure to WMD through its work in Air Force simulation exercises dealing with chemical and biological terrorism. This early work generated an unprecedented body of research, including a database that currently consists of more than 20,000 articles on the psychological, social and behavioral manifestations of exposure to traumatic events. These references include mental health responses ranging from resilience to psychiatric illness such as PTSD, acute stress disorder, and depression.

In the 1990s the Center made major contributions to the newly emerging field of disaster mental health and disaster psychiatry publishing one of the most scholarly and comprehensive books on disaster, *Individual and Community Responses to Trauma and Disaster: The Structure of Human Chaos.* This book and the Center's work on the effects of trauma on first responders helped shape the landscape of disaster and trauma research, education and consultation.

In response to the events of 9/11, CSTS was instrumental in educating leadership at the federal, state and local levels about individual and community responses to terrorism, and expanded its research to encompass workplace preparedness for terrorism and disaster. CSTS provided consultation to the U.S. Senate, the U.S. House of Representatives, the U.S. Department of State, the U.S. Department of Transportation, a number of Fortune 100 corporations, and numerous government leaders.

Since the start of the war on terrorism, the Center has generated and disseminated knowledge on the effects of deployment and combat on soldiers, sailors, airmen and marines and their families. The Center has galvanized nationally renowned academics and medical leadership as well as its own subject matter experts to contribute to new areas of trauma need, such as the impact of combat injury on military healthcare providers, service members, their families and children. The Center has also mobilized its existing resources to examine the prevalence of deployment-related family violence, child maltreatment and neglect that have escalated in the military community since the start of the war on terror.

Concomitant with the Center's advances and involvement in military and disaster psychiatry, the Center has engaged in translational research in neuroscience that addresses the brain-related prevention, onset and recovery elements of the neurobiology of trauma-related exposures. This research has been and continues to be invaluable to the Defense Centers of Excellence (DCoE) for Psychological Health and Traumatic Brain Injury of which CSTS is the academic arm and a partnering Center.

In July 2009, NIMH awarded the Center an unprecedented $50 million grant to coordinate and conduct the largest study of suicide and mental health among military personnel. The study is a direct response to the Army's request to NIMH to enlist the most promising scientific approaches for addressing the rising suicide rate among soldiers. The Center will collaborate with researchers from Harvard, Columbia and University of Michigan to conduct an epidemiologic study of mental health, psychological resilience, suicide risk, suicide-related behaviors, and suicide deaths in the Army. The Center's leadership and involvement in this study supports the Army as taking the lead in trauma informed care to benefit the military and the nation.

## The Center:

- **Develops and carries out research** programs to extend our knowledge of the medical and psychiatric consequences of war, deployment, trauma, disaster and terrorism, including weapons of mass destruction.
- **Educates and trains** health care providers, leaders, individuals and public and private agencies on how to prevent, mitigate and respond to the negative consequences of war, deployment, traumatic events, disasters, and terrorism.
- **Consults with private and government agencies** on medical care of trauma victims, their families and communities, and their recovery following traumatic events, disasters, and terrorism.
- **Maintains an archive of medical literature** on the health consequences of traumatic events, disasters and terrorism for individuals, families, organizations, and communities.
- **Provides opportunities for post-doctoral training** of medical scientists to respond to and research the health consequences of trauma.

# *Conversation with Robert K. Gifford, Ph.D.*

**Our major studies of Guard and Reserve personnel, which are ongoing, will make an invaluable contribution to understanding the effects of military service on health and well-being. With involvement in community shielding, the Center has become part of a novel way of conceptualizing disaster preparedness.**

Robert K. Gifford, Ph.D.
Executive Officer,
Center for the Study of Traumatic Stress
Associate Director,
Homeland Security Studies

*"We are successfully managing a period of large growth in our Center and setting the groundwork for a period in which we will make a major contribution in the health and mental health of the nation."*

In March 2009, Robert K. Gifford, Ph.D., CSTS senior scientist and Associate Director of Homeland Security Studies, was appointed the Center's Executive Officer. In this role, Dr. Gifford assists Dr. Ursano by ensuring that the Center's diverse efforts are properly coordinated and supported, and that the Center fulfills its obligations both to Uniformed Services University and to external agencies, such as DCoE. This includes but is not limited to the timely delivery of high quality services and products that represent the Center's expertise in trauma research, education, consultation and training.

Dr. Gifford conducted psychological research during Operation Desert Shield/Storm, in Somalia, and in Bosnia, as well as in Germany and the United States. He served as Research Psychology Consultant to The U.S. Army Surgeon General and later as the Army Medical Service Corps' Assistant Chief for Medical Allied Sciences. Dr. Gifford brings extensive expertise in military research and research management for the military to the Center.

*In describing your role as CSTS Executive Officer could you comment on highlights of 2009 in terms of the Center's growth and impact?*

The Center's having created a new office and role, Executive Officer, speaks directly to the highlights and impact of 2009 — the Center's *enhanced mission* as the academic arm and one of the partnering centers of DCoE, and our expanded grant activity. More specifically, the Center's enhanced mission is the result and confluence of 1) our having received a number of grants to study PTSD and TBI involving extensive research and resources; 2) our dynamic and complex affiliation with DCoE resulting in new responsibilities in research, education and consultation, i.e. more requests for our services, and; 3) having received the largest amount of money ever received by USU in a single grant, $50 million to study suicide in the Army.

*What about your other role as Associate Director, Homeland Security Studies?*

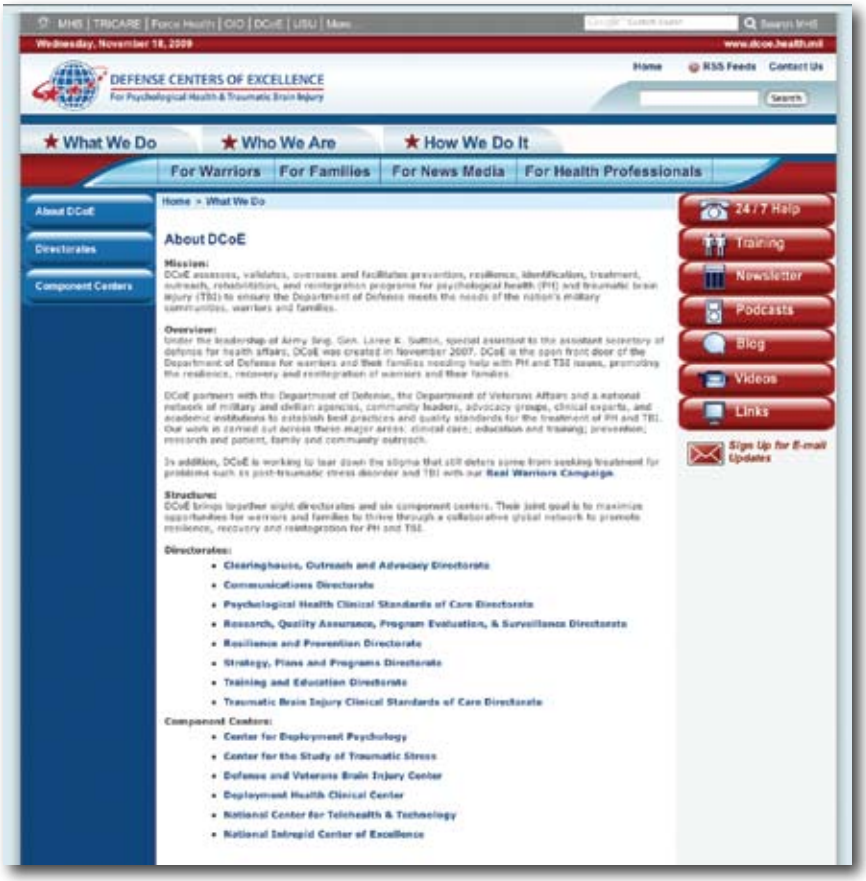
My role role involves work on two important research projects. The first is a longitudinal study of health and mental health of National Guard and Reserve service members, being done in collaboration with Dr. Sandro Galea of the University of Michigan. This project is being funded both by the U.S. Army Medical Research and Material Command and NIMH. I oversee access to military populations that constitute our research base. This research will provide a unique look at trajectories of health and illness among members of the Reserve Component of our armed forces. The Center

is also involved in community resilience/ shielding studies in collaboration with University of Virginia (UVA). I consult on a UVA sponsored survey of disaster, terrorist attack and public health threat. Our current project is to develop educational materials for preparing for the National Capital Region (NCR) for National Planning Scenario No. 2, an aerosolized anthrax attack, and also H1N1.

It was also a privilege to have participated on the External Scientific Advisory Board of Ohio's Kaptur Combat Mental Health Initiative: Risk and Resilience Factors for Combat-Related Posttraumatic Psychopathology and Post Combat Adjustment research project. Congresswoman Marcy Kaptur from Ohio has been a champion of veterans care and was instrumental in obtaining funding for this key research initiative.

*Regarding the Center's enhanced mission, how would you sum up 2009?*

In looking at this past year, I would say that the Center has made great strides in synchronizing our operations with DCoE and being a contributing center. Our impact has been significant in science across the board. Major studies of Guard and Reserve personnel, which are ongoing, will make an invaluable contribution to understanding the effects of military service on health and well-being. With involvement in community shielding, the Center has become part of a novel way of conceptualizing disaster preparedness. Past ways of looking at disaster planning have failed to consider the human dimension in motivating people to prepare and respond. We are proud to be working with leaders in changing how to think about preparedness.




Defense Centers of Excellence (DCoE) works with national organizations and experts to establish best practices and quality standards for the treatment of war related psychological disorders including traumatic brain injury. CSTS serves as DCoE's academic arm and is one of its partner centers.

# *Conversation with Carol S. Fullerton, Ph.D.*

**Our 2009 research represents some exciting directions and advances. We are combining our methodologies in unique ways to extend scientific boundaries and possibilities.**

Carol S. Fullerton, Ph.D.
Scientific Director
Center for the Study of Traumatic Stress

*"We've moved into the arena of intervention. We are taking evidence-informed approaches and applying them to change the behavior of populations. We're in the field actually implementing what we've learned from our research."*

Carol S. Fullerton, Ph.D., Research Professor in the USU Department of Psychiatry, serves as CSTS Scientific Director. She has the distinction of being part of the Center for over 20 years, and has been instrumental in its growth and excellence. A 2005 recipient of the James Leonard Award for Excellence in Clinical Research, Dr. Fullerton is widely published in the areas of PTSD and the behavioral and psychological effects of exposure to terrorism, bioterrorism, natural disasters and combat.

CSTS hosted a screening of a PBS special in which Dr. Fullerton appeared on the life and work of her father, "Herbert Hauptman: Portrait of a Laureate." Dr. Hauptman received the Nobel Prize in chemistry in 1985. He has served on the Center's Scientific Advisory Board since its inception (photo of Dr. Hauptman at right).

Her roots in science run deep. In September, 2008, Uniformed Services University hosted a screening of a PBS special in which Dr. Fullerton appeared on the life and work of her father, "Herbert Hauptman: Portrait of a Laureate." Dr. Hauptman received the Nobel Prize in chemistry in 1985. He has served on the Center's Scientific Advisory Board since its inception.

*In describing your role as CSTS Scientific Director, how would you characterize 2009 in terms of the Center's contributions and advances in trauma research?*

As Scientific Director, I oversee the Center's research portfolio, core resources, and postdoctoral training. The Center's research on traumatic stress encompasses epidemiology (the study of the causes, distribution and control of disease in populations), laboratory work with animals and humans, and clinical and translational research in neuroscience that informs the prevention and treatment for serious stress disorders including depression, PTSD and the risks and actuality of suicide.

Our 2009 research represents some exciting directions and advances. We are combining our methodologies in unique ways to extend scientific boundaries and possibilities. An example of this trend is our study, *P11, a Biomarker for Memory Retrieval: A Possible Role in Traumatic Stress* that uniquely combines psychosocial measures and neuroscience. We plan

to survey service members for PTSD, depression and prior trauma history, while simultaneously collecting blood and saliva samples to look for genetic biomarkers for PTSD and depression.

We are also applying our research to impact the behavior and psychological well being of populations who have been exposed or will be exposed to trauma. This is exemplified by our *Mortuary Affairs Soldiers: Early Intervention and Altering Barriers to Care for Traumatic Stress and PTSD (TEAM: Troop Education for Army Morale).*

*Could you describe TEAM and its significance?*

TEAM (Troop Education for Army Morale) is an educational program designed to help U.S. Army Mortuary Affairs Soldiers and their spouses (one of the few programs to target this population) deal post-deployment with the complex challenges that often result from traumatic exposure. The TEAM intervention focuses on "natural support systems" such as spouses and buddies while providing a "stepped care" individualized approach. TEAM utilizes Psychological First Aid, an evidence-informed resiliency building approach to help people in the aftermath of disasters and traumatic events. TEAM includes soldier and spouse workshops, educational materials, a toll-free help line, email services and a dedicated interactive website. The significance of TEAM is its protective and preventive implications. Rather than diagnosing and treating, we are using resources from the environment (spouses, buddies), which conserves healthcare resources. The study will follow-up both soldiers and spouses over a period of 9 months post-deployment.


*What about the Center's growth in core resources?*

This year we plan to use "public access databases" that will enable us to compare data from populations we study to other comparable populations. An example is accessing Longscan data, which addresses child neglect in the civilian population, and dovetails with our Family Violence Program research of child neglect in the military. In addition we will be working with the Department of Defense Survey of Health Related Behaviors Among Military Personnel (HRB) database to extend our study of suicide in the military.

Another aspect of the Center's research is our dedication to training and educating promising scientists. We invest time and expertise in building our training program for postdoctoral professionals by providing opportunities for growth in the area of trauma and disaster research including grant writing, conducting empirical research, participating in seminars and professional meetings and publishing in professional journals.

TEAM (Troop Education for Army Morale) is an educational program designed to help U.S. Army Mortuary Affairs Soldiers and their spouses deal post deployment with the complex challenges that often result from traumatic exposure.

# *Conversation with David M. Benedek, M.D.*

**PFA has become an integral part of USU's medical student education and a comprehensive curriculum including a 'train the trainer' approach with wide ranging applications as a trauma and resiliency building intervention for military and civilian responder populations.**

COL David M. Benedek, M.D.
Associate Director,
Consultation and Education
Center for the Study of Traumatic Stress

*"Increasingly the Center is turning its attention towards answering critical military health issues such as understanding the unique risk factors for suicide and developing evidence-based interventions. Our scientific initiatives continue to address not only PTSD and TBI within military populations, but also neglect, abuse, and reintegration into garrison or civilian life after deployment."*

As Deputy Chairman of the USU Department of Psychiatry and CSTS Associate Director for Consultation and Education, Dr. Benedek plays an active role in the Center's training, education and outreach, as well as the Center's research in neuroscience. Dr. Benedek was instrumental in developing the American Psychiatric Association's Practice Guideline for the treatment of Acute Stress Disorder and Posttraumatic Stress Disorder (American Psychiatric Association, 2004), and the APA's PTSD Guideline Watch (American Psychiatric Association, 2009). He has authored or co-authored over 75 scientific publications, and has presented on numerous aspects of military, disaster, and forensic psychiatry at regional, national, and international professional conferences.

Dr. Benedek's 2009 contributions on behalf of the CSTS include national recognition for a Centers for Disease Control and Prevention (CDC) first-responder resiliency officer training program incorporating principles of PFA and peer support, and leadership as both a team member and PI for some major research initiatives that build upon the Center's pioneering work in the neurobiology, as well as, prevention and recovery elements of trauma-related disorders.

*In describing your role and activities at CSTS, how would you characterize 2009 in terms of the Center's contributions and advances in trauma research, education and consultation?*

The Center is currently engaged in three noteworthy research projects addressing the neurobiology of trauma with implications for PTSD and related brain injury prevention and treatment. The first involves the Congressionally Directed Medical Research Program's (CDMRP) INTRuST Clinical Consortium; I serve as principal investigator for one of its sites, the National Capital Area Integrated Clinical Study Site (NCAICSS). The second is the VA-DoD PTSD CNS Tissue Repository, formerly referred to as Brain Bank. The third builds on the work of our prior p11 studies and is referred to as our *Stress & Biomarkers in a Military Population* study.

The NCAICSS is a collaboration of DoD, U.S. Department of Veterans Affairs (VA), and civilian clinicians and researchers within the National Capital region that comprise one of the ten sites with the CDMRP's clinical consortium for Psychological Health and TBI. Dr. Murray Stein at the University of California San Diego directs this 10 site clinical consortium. Our site has established a network of clinician-researchers at Walter Reed Army Medical Center (WRAMC), National Naval Medical Center (NNMC), the DC VA Hospital, and the Armed Forces Retirement Home that will initiate clinical

trials for novel medications and psychotherapy treatment for PTSD and other combat-related disorders including mild traumatic brain injury (mTBI). The Study Site includes CSTS neuroscientist Connie Duncan, whose 5-year, 2 million dollar neuro imaging, cognitive testing, and electrophysiological profiling study of service members with mTBI will be one of the first studies initiated by the consortium.

*What are the activities of the DoD-VA Collaborative Tissue Repository?*

The DoD-VA Collaborative Tissue Repository represents a renewed direction for Brain Bank, a group led by the CSTS and the National Center for PTSD (NCPTSD). This group previously studied a small sample of PTSD and matched control brains (from the Stanley Medical Research Institute and NIH collections) that resulted in the identification of candidate biomarkers for PTSD and the p11 study (described below). DCoE has provided CSTS with additional funding to establish ethical and regulatory advisory groups to insure that donor identification, consent, assessment, and processes related to specimen collection and distribution are conducted in accordance with relevant ethical considerations and legal standards and with the highest degree of respect for donors and their families.

*Could you describe the p11 study that builds on the Center's work in the neurobiology of stress?*

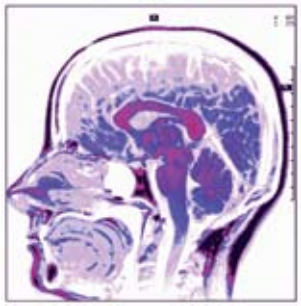
Our Stress and Biomarker study will enroll, survey and collect blood samples from approximately 1,200 soldiers from highly operational, frequently deployed units at a large Army base. Of this group, 80% are likely to have experienced significant combat exposure. Anonymous surveys will be administered to encourage accurate self-reporting, and will screen for probable PTSD, depression, mTBI, substance use disorders and previous trauma history. Blood and saliva samples will also be taken. We will analyze data to determine if p11 or other protein biomarkers can discriminate between vulnerability for PTSD or other mental disorders, or serve as a marker for disease status. Among our Center's research advances

### Psychological First Aid Principles

Psychological first aid (PFA) includes five core principles: safety, calming, connectedness, self-efficacy, hope, and optimism. The actions taken when administering PFA include the following:

- Contact and engagement with members of the team
- Physical and psychological safety assessments
- Calming and stabilizing distressed persons
- Gathering information about issues or concerns
- Offering practical assistance
- Making connections
- Helping others cope
- Linking distressed people with collaborative services


CSTS in the News (see CDC Website above): Virtual Reality Helps CDC Staff Deployed for Outbreak Response Prepare for Stress. Published: May 14, 2009.



1. Zhang: p11 mRNA levels in PBMCs of controls, PTSD, BP, MDD & SCZ (top image, left).

2. Zhang: Relationship between PBMC p11 mRNA expression levels and symptoms of PTSD (top image, right).

3. ZhangL 5-HT2A receptors were highly expressed on the Parvalbumin-labeled Interneurons in the amygdala (bottom image, left).

4. Johnson: Stress Signaling at the Synapse (bottom image, right).

in 2009 are the unique combining of two distinctly different scientific methodologies — psychosocial measures (the survey was created by CSTS Scientific Director, Dr. Fullerton) and genetic biomarkers.

*Your work in the training and application of PFA is very exciting. How was the Center involved in helping CDC's first responders?*

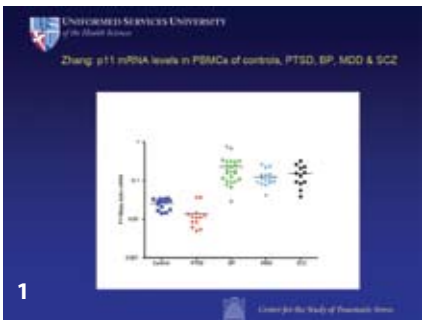
Our work with CDC represents another new direction for our Center – applying evidence-informed approaches to real world trauma response training. For decades, CDC professionals have deployed around the world to control disease outbreaks, collect health knowledge, and improve response strategies. In addition to protecting physical safety, there has been recognition of the mental stressors that responders experience from traumatic exposure to events such as the Sumatran Tsunami and Hurricane Katrina. To address this, CDC provided funding to CSTS to develop and implement training for their Deployment Safety and Resiliency Team (DSRT) officers. The key component of this training is Psychological First Aid (PFA). We taught DSRT its basic concepts (see PFA Principles on page 9) to build resiliency among colleagues through peer support. PFA has become an integral part of USU's medical student education and a comprehensive curriculum including a 'train the trainer' approach with wide ranging applications as a trauma and resiliency building intervention for military and civilian responder populations.

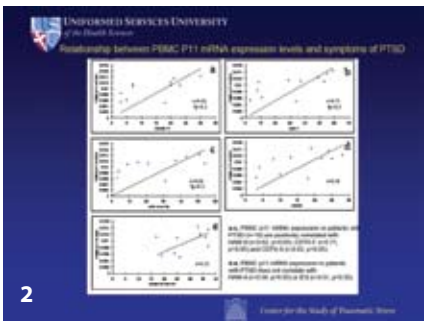
## Neuroscience Activity at Center for the Study of Traumatic Stress

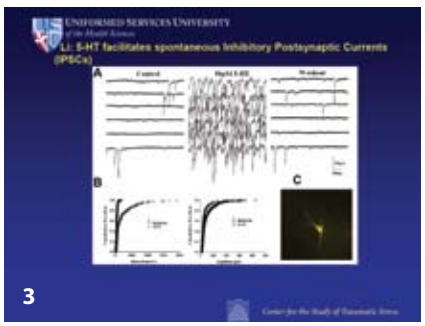
Center neuroscientists have discovered two new critical components in the neurobiology of post traumatic stress disorder (PTSD). In addition to characterizing the function of serotonin (5-HT2A) receptors in stress response, the CSTS and its collaborators have identified changes in the levels of the p11 gene and protein (p11) and have measured gene expression within cellular mitochondria. These observations may lead to new treatments and diagnostic tools for PTSD.

The posters on this page illustrate some of the translational research conducted by Center neuroscientists.

The fourth annual **Amygdala, Stress and PTSD Conference**, sponsored by CSTS and the USU Graduate Program in Neuroscience, was held on April 28th, 2009 at USU. The conference, which brings together scientists and clinicians working towards solving the biological basis of post traumatic stress disorder, featured Nobel Laureate, Dr. Paul Greengard's work on neuronal function and memory processes/ intracellular components of synaptic transmission. He presented on his work: p11 as a predictor of vulnerability to depression.




# *Conversation with John A. Stuart, Ph.D.*

**The Center's grant funding has gone from $4 million in February 08, to $21 million in June 09, to over $70 million in July 09. Our organizational structure must reflect and respond to these changes and the challenges posed."**

John A. Stuart, Ph.D.
Director, Resource Management
Center for the Study of Traumatic Stress

*"We're trying to accommodate our facilities to meet unprecedented demand and growth that has resulted from a dramatic increase in grants. The Center's grant funding has gone from $4 million in February 08, to $21 million in June 09, to over $70 million in July 09. Our organizational structure must reflect and respond to these changes and the challenges posed."*

In his role as Director, Resource Management, Dr. Stuart oversees the Center's human resources, information technology, operations and grants. Prior to year 2004, he served 21 years in the U.S. Army as a Research Psychologist with assignments at the U.S. Army Medical Research and Material Command, Ft. Detrick, Maryland, the Walter Reed Army Institute of Research, Washington DC, and U.S. Army Academy of Health Sciences, San Antonio, Texas. Dr. Stuart has published on a variety of stress related research topics covering recent military deployments, stress indices and measures, and reports in belief to toxic exposures.

*In your role as CSTS Director for Resource Management, how would you characterize the Center's highlights and growth in 2009?*

My role involves acquisition and maintenance of computer related hardware, software, accessories or any device, which promotes knowledge, data processing and retrieval. This includes the Center's large literature database with over 20,000 publications and extensive research datasets. I supervise a staff that includes a Computer Scientist and support staff. The most complex, time-intensive aspect of my work at the Center is oversight and administrative support of all of our submitted and accepted grants. One could generally characterize the process in terms of months — that include development, award, and post award periods of performance. Research grants are designed to answer questions of science and behavior and as such involve a dynamic system of personnel, technology, expenses and other support to effect the process.

A review of the grants — ongoing and new as of 2009 — is an excellent way to understand the Center's impact and growth in 2009 (see next page).

# *Center for the Study of Traumatic Stress: Active Grants*

- CSTS Health Education Conference Series
- Trauma Health Education: Psychological and Behavioral Response, Recovery, and Mitigation
- Development of the Child and Family Trauma Program
- Family Violence and Trauma Project III
- Neuroscience Education and Training
- *Protecting the Health, Safety & Resilience of Deployed Staff
- *Safety and Health at Work for all People
- Amphetamine Challenge: A Marker of Brain Function that Mediates Risk for Drug Abuse and Alcohol Abuse
- Inhibitory Control: Toward a Vulnerability Phenotype
- *Clinical Study Site for PTSD and TBI (sub-award)
- Addressing the Needs of Children and Families of Combat Injured
- *Mortuary Affairs Soldiers: Early Intervention and Altering Barriers to Care for Traumatic Stress and PTSD
- Deployment Family Stress: Child Neglect and Maltreatment in U. S. Army Families
- Mental Health and Service Utilization Among Reserve and National Guard Forces (sub award)
- *PTSD Trajectory, Co-morbidity, and Utilization of Mental Health Services among Reserve Forces (sub award)
- *PTSD Trajectory, Co-morbidity, and Utilization of Mental Health Services among National Guard Soldiers
- Stress and Resiliency in U. S. Army Mortuary Affairs Soldiers
- *P11, a Biomarker for Memory Retrieval: A Possible Role in Traumatic Stress
- Corticosterone Administration to Promote Fear Memory Forgetting Process in an Animal Model of PTSD
- Neurobiological Evaluation of Novel Targets for Therapeutic Intervention in PTSD
- Identification of Gene Expression Patterns in Brain Tissues and Peripheral White Blood Cells of Rat Model of PTSD
- Community Shielding Applications to the National Capital Region (Sub award)
- *Guidelines for Assessing and Measuring Community Resilience
- *CSTS - Program Grant
- *FOCUS-CI Preventive Intervention with Children and Families of Combat Injured
- *U.S. Army STARRS (Studies to Assess Risk and Resilience in Servicemen)

** Indicates grants received in 2009.*

# *Conversation with Stephen J. Cozza, M.D.*

**The work of the Center's Child and Family Program is especially focused on the impact of war including deployment stress, parenting and family function, and the impact of war injuries on military children and families.**

Stephen J. Cozza, M. D.
Associate Director, Child and Family Program
Center for the Study of Traumatic Stress

*"We have laid the groundwork for collecting scientifically-based data from military families. Our findings will help us develop evidence-based approaches and interventions that are responsive to families under stress and change. Supporting the psychological health and resilience of our military families also fosters our nation's national security."*

Dr. Cozza, CSTS Associate Director, oversees the Child and Family Program (CFP), which provides national leadership in advancing scientific knowledge and clinical interventions that address the needs of children and families affected by trauma. The work of the Center's Child and Family Program is focused in large part on the impact of war including deployment stress, parenting and family function, and the impact of war injuries on military children and families. This outreach is accomplished through research programs, education of military and civilian leadership, and consultation to diverse stakeholders in children's health and welfare including national media outlets, professional organizations, and projects dedicated to helping children and families affected by traumatic events.

*Could you describe some of the highlights and contributions of CFP in 2009?*

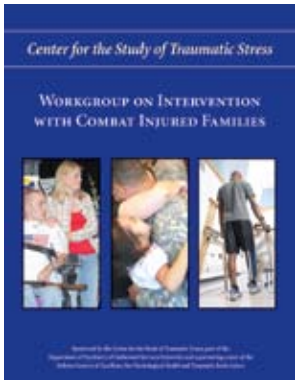
The CFP has contributed its expertise in understanding and responding to child and family trauma in the arenas of national disaster preparedness, as well as in military health — advancing the care and resilience of military children and families.

In the area of national preparedness, the Center served on the Advisory Board of Sesame Workshop's *"Let's Get Ready: Planning Together for Emergencies."* The U.S. Department of Homeland Security is using this educational resource to assist young children and families in preparing for disasters as part of their Ready.gov campaign.

I also had the opportunity to chair the Disaster Committee and Disaster Task Force of the American Academy of Child and Adolescent Psychiatry, as well as to present, "The Role of Child Psychiatrists in Disaster Response," at their annual meeting.

*What about your work with military children and families?*

The Center has been a leader in understanding, studying and educating the nation around the unique challenges


CFP contributed to the book, **For Children of Valor**, and published the first document on caring for combat injured families.

and needs of military children that result from the ongoing deployment to Iraq and Afghanistan. This year, in addition to our current military child and family research projects, we received $6 million in funding from Congressionally Directed Medical Research Programs (CDMRP) to adapt an intervention that has been used successfully with high-risk traumatized children and families. The grant, referred to as FOCUS-CI Preventive Intervention with Children and Families of Combat Injured, is supported by the Center's collaboration with prominent child and adolescent psychiatrists and researchers at Harvard, UCLA and University of Washington. We are adapting this family-centered intervention, FOCUS (originally named Families Overcoming and Coping under Stress), for use with military children affected by parental injury. Importantly, our research initiatives have laid the groundwork for collecting scientifically based data from military families. Our findings will further inform and help develop approaches and clinical interventions that are evidence-based. Supporting the psychological health and resilience of our military families also fosters our nation's national security.

*What has been the role of the Center's Child and Family in public education and consultation?*

We strive to communicate our knowledge to important professional audiences as well as to the general public. We published an important document, the first of its kind, outlining the issues and challenges of caring for military families and children affected by parental, war-related injury. **Proceedings: Workgroup on Intervention with Combat Injured Families** also contains *Principles of Caring for Combat Injured Families and their Children* and two *Resources for Recovery* fact sheets for military health care providers and military families.

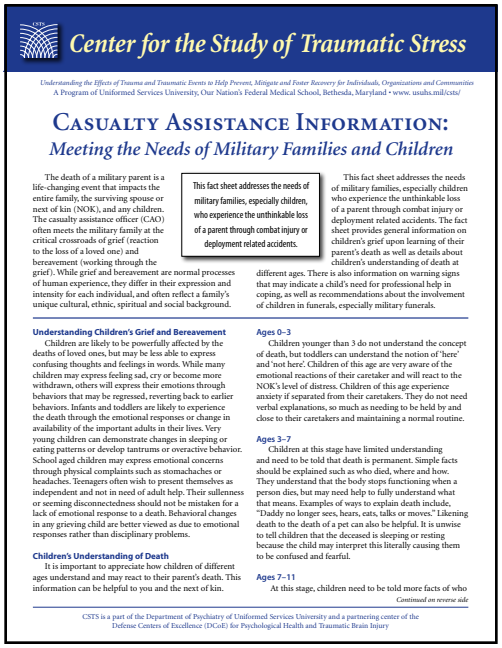
A consultation highlight, the result of several years involvement as an advisor to Sesame Workshop, was our work on the Sesame Street PBS Special, *"Coming Home: Military Families Cope with Change"* where I explain PTSD to Elmo, the muppet. This television special was a phenomenal tribute to the needs and valuing of military children. I also had the honor of helping write a book, **For Children of Valor**, which Arlington National Cemetery will provide to young children who have lost a parent in war.

CSTS CFP continues its collaborations with National Child Traumatic Stress Network (NCTSN), Zero to Three, Military Child Education Coalition (MCEC) and National Military Family Association (NMFA). We worked collaboratively with NMFA to study families of injured service members attending their Operation Purple (Healing Adventures) Camps, another opportunity to learn about the effect of these profound events on military children and families.

*How would you sum up 2009 as a springboard to the growth and impact of CFP?*

We have laid the groundwork for collecting scientifically based data from military families. Our findings will help us develop evidence-based approaches and interventions that are responsive to families under stress and change. Supporting the psychological health and resilience of our military families also fosters our nation's national security.

We are contributing our knowledge to enhance national preparedness for all children and families. Through strong collaborations that strengthen our research and educational outreach, CFP is positioned to continue to shape and advance the field of child and family trauma.



Center for the Study of Traumatic Stress

*Understanding the Effects of Trauma and Traumatic Events to Help Prevent, Mitigate and Foster Recovery for Individuals, Organizations and Communities*
A Program of Uniformed Services University, Our Nation's Federal Medical School, Bethesda, Maryland • www. usuhs.mil/csts/

**Casualty Assistance Information:**
***Meeting the Needs of Military Families and Children***

The death of a military parent is a life-changing event that impacts the entire family, the surviving spouse or next of kin (NOK), and any children. The casualty assistance officer (CAO) often meets the military family at the critical crossroads of grief (reaction to the loss of a loved one) and bereavement (working through the grief). While grief and bereavement are normal processes of human experience, they differ in their expression and intensity for each individual, and often reflect a family's unique cultural, ethnic, spiritual and social background.

This fact sheet addresses the needs of military families, especially children, who experience the unthinkable loss of a parent through combat injury or deployment related accidents.

This fact sheet addresses the needs of military families, especially children who experience the unthinkable loss of a parent through combat injury or deployment related accidents. The fact sheet provides general information on children's grief upon learning of their parent's death as well as details about children's understanding of death at different ages. There is also information on warning signs that may indicate a child's need for professional help in coping, as well as recommendations about the involvement of children in funerals, especially military funerals.

**Understanding Children's Grief and Bereavement**

Children are likely to be powerfully affected by the deaths of loved ones, but may be less able to express confusing thoughts and feelings in words. While many children may express feeling sad, cry or become more withdrawn, others will express their emotions through behaviors that may be regressed, reverting back to earlier behaviors. Infants and toddlers are likely to experience the death through the emotional responses or change in availability of the important adults in their lives. Very young children can demonstrate changes in sleeping or eating patterns or develop tantrums or overactive behavior. School aged children may express emotional concerns through physical complaints such as stomachaches or headaches. Teenagers often wish to present themselves as independent and not in need of adult help. Their sullenness or seeming disconnectedness should not be mistaken for a lack of emotional response to a death. Behavioral changes in any grieving child are better viewed as due to emotional responses rather than disciplinary problems.

**Children's Understanding of Death**

It is important to appreciate how children of different ages understand and may react to their parent's death. This information can be helpful to you and the next of kin.

**Ages 0–3**

Children younger than 3 do not understand the concept of death, but toddlers can understand the notion of 'here' and 'not here'. Children of this age are very aware of the emotional reactions of their caretaker and will react to the NOK's level of distress. Children of this age experience anxiety if separated from their caretakers. They do not need verbal explanations, so much as needing to be held by and close to their caretakers and maintaining a normal routine.

**Ages 3–7**

Children at this stage have limited understanding and need to be told that death is permanent. Simple facts should be explained such as who died, where and how. They understand that the body stops functioning when a person dies, but may need help to fully understand what that means. Examples of ways to explain death include, "Daddy no longer sees, hears, eats, talks or moves." Likening death to the death of a pet can also be helpful. It is unwise to tell children that the deceased is sleeping or resting because the child may interpret this literally causing them to be confused and fearful.

**Ages 7–11**

At this stage, children need to be told more facts of who

*Continued on reverse side*

CSTS is a part of the Department of Psychiatry of Uniformed Services University and a partnering center of the Defense Centers of Excellence (DCoE) for Psychological Health and Traumatic Brain Injury

One of many CSTS fact sheets prepared for military families and children.

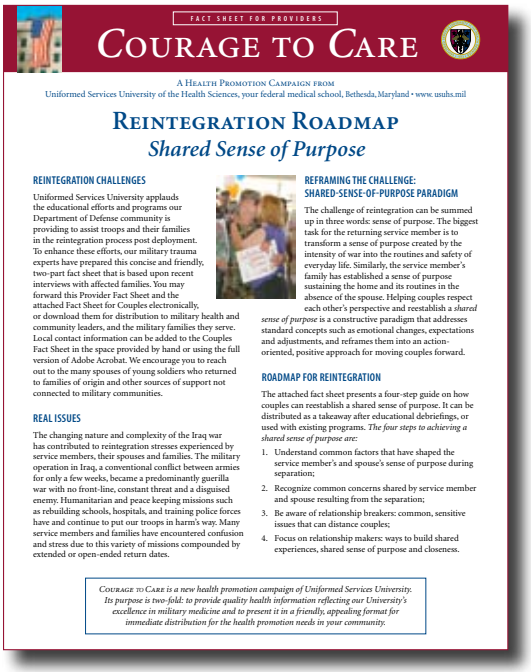
# *Conversation with Nancy T. Vineburgh, M.A.*

**We translate the academic and clinical expertise of the Center in disaster planning, response and recovery, and military unique health issues around trauma for the benefit of our civilian and military populations.**

Nancy T. Vineburgh, M.A.
Associate Director, Office of Public Education and Preparedness
Center for the Study of Traumatic Stress

*"The Center, as part of the USU Department of Psychiatry, is regarded as the trusted voice regarding the psychological effects and health consequences of trauma and traumatic stress in the arena of military and public health. OPEP develops educational resources that communicate the Center's voice and vision."*

Nancy Vineburgh oversees CSTS Office of Public Education and Preparedness (OPEP). She provides communication and public education expertise on health and mental health topics, and works with CSTS scientists to develop and disseminate educational resources for military and civilian audiences. Under her leadership, the Center spearheaded *Courage to Care*, an electronic fact sheet initiative that is distributed to military healthcare providers and service members and families nationally and internationally. She has conducted research and published numerous articles on workplace preparedness for terrorism and disaster.



FACT SHEET FOR PROVIDERS

COURAGE TO CARE

A Health Promotion Campaign from
Uniformed Services University of the Health Sciences, your federal medical school, Bethesda, Maryland • www.usuhs.mil

REINTEGRATION ROADMAP
*Shared Sense of Purpose*

REINTEGRATION CHALLENGES

Uniformed Services University applauds the educational efforts and programs our Department of Defense community is providing to assist troops and their families in the reintegration process post deployment. To enhance these efforts, our military trauma experts have prepared this concise and friendly, two-part fact sheet that is based upon recent interviews with affected families. You may forward this Provider Fact Sheet and the attached Fact Sheet for Couples electronically, or download them for distribution to military health and community leaders, and the military families they serve. Local contact information can be added to the Couples Fact Sheet in the space provided by hand or using the full version of Adobe Acrobat. We encourage you to reach out to the many spouses of young soldiers who returned to families of origin and other sources of support not connected to military communities.

REAL ISSUES

The changing nature and complexity of the Iraq war has contributed to reintegration stresses experienced by service members, their spouses and families. The military operation in Iraq, a conventional conflict between armies for only a few weeks, became a predominantly guerilla war with no front-line, constant threat and a disguised enemy. Humanitarian and peace keeping missions such as rebuilding schools, hospitals, and training police forces have and continue to put our troops in harm's way. Many service members and families have encountered confusion and stress due to this variety of missions compounded by extended or open-ended return dates.

REFRAMING THE CHALLENGE: SHARED-SENSE-OF-PURPOSE PARADIGM

The challenge of reintegration can be summed up in three words: sense of purpose. The biggest task for the returning service member is to transform a sense of purpose created by the intensity of war into the routines and safety of everyday life. Similarly, the service member's family has established a sense of purpose sustaining the home and its routines in the absence of the spouse. Helping couples respect each other's perspective and reestablish a *shared sense of purpose* is a constructive paradigm that addresses standard concepts such as emotional changes, expectations and adjustments, and reframes them into an action-oriented, positive approach for moving couples forward.

ROADMAP FOR REINTEGRATION

The attached fact sheet presents a four-step guide on how couples can reestablish a shared sense of purpose. It can be distributed as a takeaway after educational debriefings, or used with existing programs. *The four steps to achieving a shared sense of purpose are:*

1. Understand common factors that have shaped the service member's and spouse's sense of purpose during separation;
2. Recognize common concerns shared by service member and spouse resulting from the separation;
3. Be aware of relationship breakers: common, sensitive issues that can distance couples;
4. Focus on relationship makers: ways to build shared experiences, shared sense of purpose and closeness.

*Courage to Care is a new health promotion campaign of Uniformed Services University. Its purpose is two-fold: to provide quality health information reflecting our University's excellence in military medicine and to present it in a friendly, appealing format for immediate distribution for the health promotion needs in your community.*

Courage to Care, launched in 2004, celebrates five years of public education service to our nation.

*In your role as CSTS Associate Director of Public Education and Preparedness, could you describe the Center's 2009 highlights and contributions in public education and outreach around the impact of trauma?*

The OPEP was established in 2004 to translate the academic and clinical expertise of the Center in both disaster planning, response and recovery, and military unique health issues around trauma for the benefit of our civilian and military populations. This includes stakeholders in government, industry and academia, healthcare providers as well as individuals, families and communities. Among our first, highly successful projects was *Courage to Care*, an electronic campaign on timely topics of military health that is a valued resource for providers and families who experience the impact of deployments, war injuries and the challenges of parenting under stress. *Courage to Care* has sustained its visibility and relevance for five years, and continues to support the psychological health and resilience of our service members and their families.

For the second consecutive year, the CSTS received the American Graphic Design Award for excellence in graphic presentation

of its public education resources. This year the CSTS 2008 Annual Report received the award. Last year's award winning presentation was the Center's *Courage to Care for Me* campaign, introduced during April's Month of the Military Child.

*Have you reached out to any new audiences this year?*

Yes, *Courage to Care* has been expanded to include a new, yet to be launched campaign, *Courage to Care Courage to Talk*. This campaign is designed to facilitate communication around war injuries in hospital settings between affected families and healthcare professionals as well as within the family itself, especially around the impact on children whose parent has sustained serious injury. OPEP developed a poster for November's DoD Warrior Care Month highlighting the Center's resources around warrior care, and assisted in the production of an important document, **Proceedings Workgroup on Intervention with Combat Injured Families**.

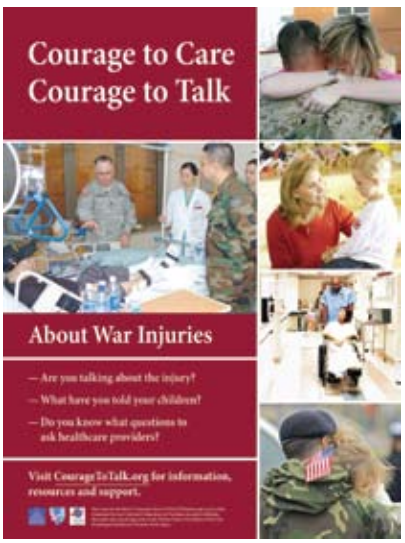
*How does OPEP assist other programs and projects within the Center?*

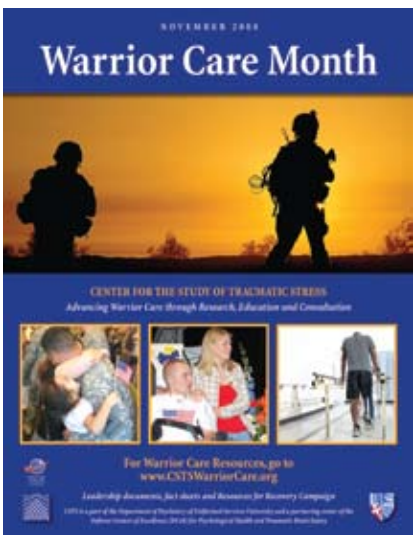
We provide editorial, design and production assistance for many projects including, *Joining Forces Joining Families*, a quarterly newsletter on family violence research for the U.S. Army Family Advocacy Program and leadership.

*How would you sum up the Center's public education contributions for 2009 and going forward?*

The Center, as part of the USU Department of Psychiatry, is regarded as the trusted voice regarding the psychological effects and health consequences of trauma and traumatic stress in the arena of military and public health. OPEP develops resources that communicate the Center's voice and vision. The Center, as the academic arm and a partnering center of DCoE, continues to be responsive to the needs for public education that supports the health and mental health of military families, especially those affected by disorders such as depression, PTSD, substance abuse, family violence and TBI. Importantly, we are capable of developing public education resources in *real time* on important topics that affect our nation such as H1N1. Going forward, we hope to align our public education outreach with the Center's suicide related research activities and initiatives.

Representative CSTS public education products — posters, fact sheets, and websites.





# *Conversation with Brian Flynn, Ed.D.*

**Dr. Flynn represents the Center at national and international conferences on the integration of behavioral health principles in planning, response and recovery around traumatic events, public health issues and healthcare systems.**

Brian Flynn, Ed.D.
Associate Director,
Health Systems
Center for the Study of Traumatic Stress

*"The Center has helped ensure that behavioral health is at the table around discussion for disaster planning, response and recovery, as well as for public health threats. Educating health systems helps us sustain and enhance this important dialogue."*

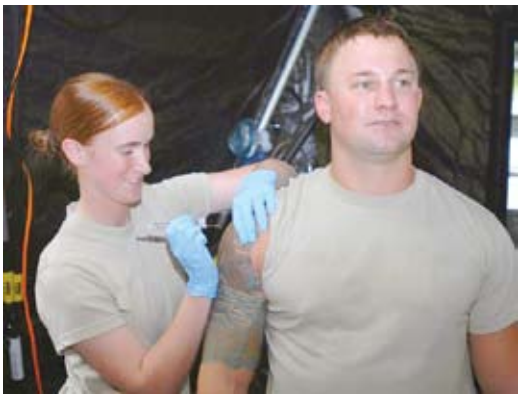
In his role as Associate Director for Health Systems, Dr. Flynn represents the Center at national and international conferences on the integration of behavioral health principles in planning, response and recovery around traumatic events, public health issues and healthcare systems. Prior to retiring from federal service in 2002 as a Rear Admiral/Assistant Surgeon General in the United States Public Health Service (USPHS), Dr. Flynn supervised the operation of the Federal Government's domestic disaster mental health program (including terrorism), as well as programs involving suicide and youth violence prevention, child trauma, refugee mental health, women's and minority mental health concerns, and rural mental health. He accompanied Vice President and Mrs. Gore to Columbine following the school shootings to meet with the families of those who were killed. He served as a special consultant to the United States Agency for International Development and the State Department following the bombings of the U.S. Embassies in Kenya and Tanzania.

*What have been the 2009 highlights of your involvement in education and training for behavioral health issues in disasters and emergency?*

This has been a year of international outreach and an expanded direction in public health issues. As part of our disaster preparedness and education efforts, I co-presented a preconference workshop prior to the National Forum on Emergency Preparedness and Response, *"The Right Stuff at the Right Place: Building Surge Capacity in Canada."*

I also conducted a one-day workshop with James Shultz, Ph.D. of University of Miami, Disaster and Extreme Event Preparedness (DEEP) Center in Winnipeg, Manitoba, Canada. The content was awareness level behavioral health issues in disasters and emergency. The Public Health Agency of Canada, with our consultation, is in the process of adapting that workshop into an online course to be available throughout Canada.

I was very privileged to present the keynote address in Jerusalem at the *International Conference on Organizational*



*and Professional Responses to Disasters* sponsored by the Schools of Social Work at Rutgers and Ben-Gurian University.

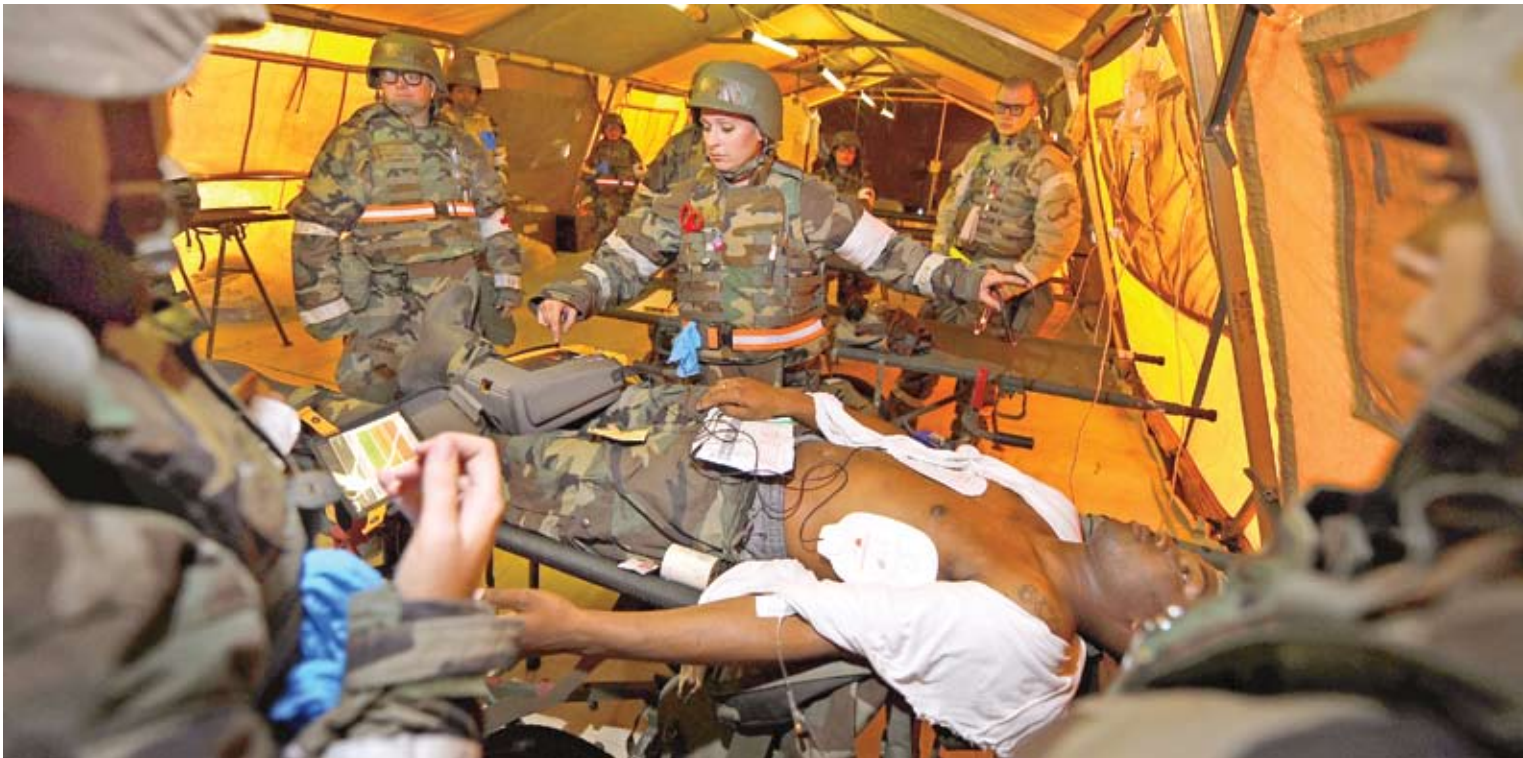
*How has your work encompassed new directions in public health?*

An important emerging topic is the behavioral health factors in understanding childhood vaccine hesitation. I provided a keynote, *Understanding Psychosocial Factors,* at the Childhood Vaccine Safety Development Workshop in Washington sponsored by Oak Ridge Institute for Science and Education, part of the U.S. Department of Energy. This led to another presentation, *"Addressing Vaccine Hesitancy: Psychosocial Considerations,"* delivered at CDC's 43rd National Immunization Conference, in Dallas, Texas.

*How do you envision building upon and expanding the Center's work going forward?*

Along with Dr. Ursano, I was privileged to be appointed to serve on the Mental Health Subcommittee of the National Biodefense Science Board (NBSB). This subcommittee was established under the requirements of Homeland Security Presidential Directive #21 (HSPD-21) whose goal is to enhance all elements of the nation's health care system to respond to extraordinary events that impact the public's health. I have provided special consultation on issues involving communication opportunities and challenges. The subcommittee anticipates continuing to advise the NBSB on behavioral health elements of a variety of topics including H1N1.

The Center has helped ensure that behavioral health is at the table around discussion for disaster planning, response and recovery as well as for public health threats. Educating health systems helps us sustain this important dialogue and contribution. Helping the Center achieve this continued visibility and the ongoing provision of content expertise is my primary objective going forward.



# *Publications*

## Department of Psychiatry Recent Publications

**Benedek DM** and **Ursano RJ**: Exposure to war as a risk factor for mental disorders. *Public Library of Science: Medicine,* 5(4): e82, 2008.

**Benedek DM**, Friedman MJ, Zatzick D, and **Ursano RJ**: Guideline watch: Practice guidelines for the treatment of patients with acute stress disorder and posttraumatic stress disorder, 2009.

**Benedek DM** and **Ursano RJ**: Understanding PTSD: From phenomenology to clinical practice. *Focus,* 7: 160–175, 2009.

Braga M, Aroniadou-Anderjaska V, **Li H**, and Rogawski M: Topiramate reduces excitability in the basolateral amygdala selectively inhibiting GluK1 (GluR5) Kainate receptor on interneurons and positively modulating GABAA receptors on principal neurons. *Journal of Pharmacology and Experimental Therapeutics*, (in press).

Donaldson LP, Ahearn FL, **Fullerton CS**, **Gifford RK,** and **Ursano RJ**: Resiliency among people who are homeless during the Washington-area sniper attacks of October 2002. *Journal of Poverty*, 13(1): 20–39, 2009.

**Engel CC**, Oxman T, Yamamoto C, Gould D, Barry S, Stewart P, Kroenke K, Williams JW Jr, and Dietrich AJ: RESPECT-Mil: Feasibility of a systems-level collaborative care approach to depression and post-traumatic stress disorder in military primary care. *Military Medicine, 173(10):* 935–940, 2008.

**Fullerton CS, Gifford RK, Flynn BW, Peterson K,** Ahearn F, Donaldson L**, and Ursano RJ:** Effects of the 2002 sniper attacks on the homeless population in Washington, DC. *Disaster Medicine and Public Health Preparedness***,** 3(4): 1–5, 2009.

**Flynn BW** and Lane CF: Integrating organizational and behavioral health principles to promote resilience in extreme events, in *International Terrorism and Threats to Security: Managerial and Organizational Challenges.* C. Cooper, R. Burke (eds.) Edward Elgar Publishing, 2008.

**Gore KL**, **Engel CC**, **Freed MC**, **Liu X**, and Armstrong DW III: Test of a single-item posttraumatic stress disorder screener in a military primary care setting. *General Hospital Psychiatry*, 30(5): 391–397, 2008.

**Hoge CW**, McGurk D, Thomas JL, Cox AL, **Engel CC**, and Castro CA: Mild traumatic brain injury among U.S. soldiers returning from Iraq. *New England Journal of Medicine*, 358(5): 453–463, 2008.

**Howe EG**: Improving the quality of life for patients with Alzheimer's disease. *Psychiatry* (Edgemont), 5(8): 51–56, 2008.

**Howe EG**: When, if ever, should care providers share their moral views with patients? *The Journal of Clinical Ethics*, 19(1): 3–10, 2008.

**Howe EG**: Red towels: Maximizing the care of patients who are dying. *The Journal of Clinical Ethics,* 19(2): 99–109, 2008.

**Howe EG** and Gross ML: Medical ethics during war. *Medical Ethics,* 15(2): 6–7, 2008.

**Howe EG** and Howe C: Three keys to treating inmates and their application in ethics consultation. *The Journal of Clinical Ethics,* 19(3): 195–203, 2008.

**Howe EG**: Beyond informed consent: The ethics of informing, anticipating, and warning. *Psychiatry* (Edgemont), 5(10): 42–47, 2008.

**Howe EG**: Child abuse: How society and careproviders should respond. *The Journal of Clinical Ethics,* 19(4): 307–315, 2008.

**Howe EG**, Kosaju A, Laraby PR, and Casscells SW: Guantanamo: Ethics interrogation, and forced feeding. *Military Medicine,* 174(1): iv–xiii, 2009.

**Howe EG**: Using nonevidence-based approaches to treat patients with Alzheimer's disease. *Psychiatry* (Edgemont), 6(3): 20–25, 2009.

**Howe EG**: Increasing consensus with inpatients and their loved ones. *The Journal of Clinical Ethics,* 20(1): 1-12, 2209.

**Howe EG**: Review of Michael L Gross, bioethics and armed conflict/moral dilemmas in medicine and war. *The American Journal of Bioethics,* 8(10): 82-84, 2008.

Jiang X, Xing G, Yang C, Verma A, **Zhang L,** and **Li H:** Stress impairs 5-$HT_{2A}$ receptor-mediated serotonergic facilitation of GABA release in juvenile rat basolateral amygdala *Neuropsychopharmacology*, 34(2): 410–423, 2009.

Jiang X, Zhanj Z-j, Zhang S, **Gamble E,** Jia M, **Ursano RJ**, and **Li H**: 5-$HT_{2A}$ receptor antagonism by MDL 11,939 administered prior to inescapable stressor prevents subsequent exaggeration of acoustic startle response and reduced body weight in rats. *Journal of Psychopharmacology*, (in press).

Kang HK, Li B, Mahan CM, Eisen SA, and **Engel CC**: Health of U.S. veterans of 1991 Gulf War: A follow-up survey in 10 years. *Journal of Occupational and Environmental Medicine*, 51(4): 401–410, 2009.

Kessler RC, Galea S, Gruber MJ, Sampson NA, **Ursano RJ**, and Wessely S: Trends in mental illness and suicidality after Hurricane Katrina. *Molecular Psychiatry,* 13(4): 374–384, 2008.

Kessler RC, Keane TM, **Ursano RJ**, Mokdad AH, and Zaslavsky AM: Sample and design considerations in post-disaster mental health needs assessment tracking surveys. *International Journal of Methods in Psychiatric Research*, 17(Suppl 2): S6–S20, 2008.

Kessler RC, Keane TM, Mokdad AH, Petukhava M, **Ursano RJ**, and Zaslavsky AM: Measuring vulnerability in post disaster mental health needs assessments. *Health Affairs*, (in press).

**Liu X**, **Engel CC**, Armstrong DW, and Kang H: Survival convergence and the preceding mortality crossover for two population subgroups. *Population Research and Policy Review*, 27(3): 293–306, 2008.

**McCarroll JE**, Fan Z, **Newby JH**, **Ursano RJ**, and **Fullerton CS**: Trends in U.S. army child maltreatment reports: 1990–2004. *Child Abuse Review*, 17(2): 108–118, 2008.

**McCarroll JE**, Castro S, Nelson EM, Fan Z, Evans PK, and Rivera A: Establishing and maintaining a volunteer victim advocate program to assist victims of domestic violence in the U.S. army. *Military Medicine, 173(9)*: 860-864, 2008.

**McCarroll JE**, Castro S, Nelson EM, Fan Z, Evans PK, and Rivera A: Characteristics of domestic violence incidents reported at the scene by volunteer victim advocates. *Military Medicine, 173(9)*: 865–870, 2008.

**Osuch EA**, Willis M, Bluhm R, CSTS Neuroimaging Study Group, **Ursano RJ**, and Drevets WC: Neurophysiological responses to traumatic reminders in the acute aftermath of serious motor vehicle collisions using [15O]-H2O positron emission tomography. *Biological Psychiatry*, 64(4): 327–335, 2008.

Robinson R, Davis JD, Krueger M, **Gore KL**, **Freed MC**, Kuesters P, Dube S, and **Engel CC**: Acceptability of adverse childhood experiences questions for health surveillance in U.S. armed forces. *Military Medicine,* 173(9): 853–859, 2008.

**Stuart J, Ursano RJ, Fullerton CS, and Wesley S**: Belief in exposure to chemical and biological agents in Persian Gulf War soldiers. *Journal of Nervous and Mental Disease*, 196(2): 122–127, 2008.

Su YA, Wu J, **Zhang L**, Zhang Q, Su DM, He P, Wang BD, **Li H**, Traumatic Stress Brain Study Group, Rennert OM, and **Ursano RJ**: Dysregulated mitochondrial genes and networks with drug targets in postmortem brain of patients with posttraumatic stress disorder (PTSD) revealed by human mitochondria-focused cDNA microarrays. *International Journal of Biological Science*, 4(4): 223–235, 2008.

Su T, **Zhang L**, Chung M, Chen Y, Bi Y, Chou Y, Barker JL, Barrett JE, Maric D, **Li XX**, **Li H**, **Webster MJ**, **Benedek DM**, **Carlton JR,** and **Ursano RJ**: Levels of the potential biomarker p11 in peripheral blood cells distinguish patients with PTSD from those with other major psychiatric disorders. *Journal of Psychiatric Research*, 43(13): 1078–1085, 2009.

**Terhakopian A**, Sinaii N, **Engel CC**, Schnurr PP, and **Hoge CW**: Estimating population prevalence of posttraumatic stress disorder: An example using the PTSD checklist. *Journal of Traumatic Stress*, 21(3): 290–300, 2008.

**Ursano RJ**, **Li H**, **Zhang L**, **Hough CJ**, **Fullerton CS**, **Benedek DM**, **Grieger TA**, and **Holloway HC:** Models of PTSD and traumatic stress: The importance of research "from bedside to bench to bedside." *Progress In Brain Research,* 167: 203–215, 2008.

**Ursano RJ**, **Benedek DM**, and **Fullerton CS**: Posttraumatic stress disorder: Neurobiology, psychology, and public health. *Psychiatric Times*, 25(3): 16–20, 2008.

**Ursano RJ** and **Engel CC**: The importance of assessing exposure to trauma. *Psychiatric Services,* 59(3): 229, 2008.

**Ursano RJ, Zhang L, Li H, Johnson L, Carlton JR, Fullerton CS,** and **Benedek DM**: PTSD and traumatic stress: From gene to community and bench to bedside. *Brain Research*, 1293: 2–12, 2009.

**Vineburgh NT, Ursano RJ, Hamaoka DA, and Fullerton CS**: Public health communication for disaster planning and response. *International Journal of Public Policy,* 3(5/6): 292–301, 2008.

Yuan P, Salvadore G, **Li XX, Zhang L**, Du J, Chen G, and Manji HK: Vaproate actives the Notch 3/c-FLIP signaling cascade: A strategy to attenuate white matter hyperintensities in bipolar disorder in late life? *Bipolar Disorders*, 11(3): 256–269, 2009.

**Zhang L, Li H**, Su TP, Barker JL, Maric D, **Fullerton CS, Webster MJ, Hough CJ, Li XX**, Traumatic Stress Brain Study Group, and **Ursano RJ**: p11 is up regulated in the forebrain of stressed rats by glucocoricoid acting via two specific glucocorticoid response elements in the p11 promotor. *Neuroscience*, 153(4): 1126-1134, 2008.

**Zhang L, Li H, Carlton JR, and Ursano RJ**: The injury profile after the 2008 earthquakes in China. *Injury*, 40(1): 84–86, 2008.

**Zhang L, Li H, Benedek DM, Li XX,** and **Ursano RJ**: A strategy for the development of biomarker tests for PTSD. *Medical Hypotheses*, (in press).

# *CSTS Scientific Advisory Board*



# *CSTS Directors and Scientists*

## CSTS DIRECTORS

**Robert J. Ursano, M.D.**
Director, CSTS
Chairman, Department of Psychiatry
Professor of Psychiatry and Neuroscience
F. Edward Hebert School of Medicine
Uniformed Services University

**COL David M. Benedek, M.D. MC, USA**
Associate Director, Consultation and Education, CSTS
Professor/Deputy Chair, Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Stephen J. Cozza, M.D.**
Associate Director, Child and Family Program, CSTS
Professor, Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Brian W. Flynn, Ed.D.**
Associate Director, Health Systems, CSTS
Adjunct Professor, Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Carol S. Fullerton, Ph.D.**
Director, Scientific Research, CSTS
Professor, Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Robert K. Gifford, Ph.D.**
Executive Officer, and
Associate Director, Homeland Security Studies, CSTS
Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**John A. Stuart, Ph.D.**
Director, Resource Management, CSTS
Assistant Professor, Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Nancy T. Vineburgh, M.A.**
Associate Director, Public Education and Preparedness, CSTS
Assistant Professor, Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

## CSTS SCIENTISTS

**COL David M. Benedek, M.D., MC, USA**
Professor
Consultant to the U.S. Army Surgeon General for Forensic Psychiatry
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Quinn M. Biggs, Ph. D., M.P.H.**
Research Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Maria Braga, D.D.S., Ph.D.**
Associate Professor
Department of Anatomy, Physiology and Genetics
F. Edward Hebert School of Medicine
Uniformed Services University

**CDR Janis Carlton, M.D., MC, USN**
Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Stephen J. Cozza, M.D.**
Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Brian Crowley, M.D.**
Clinical Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Connie Duncan, Ph.D.**
Research Associate Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Richard S. Epstein, M.D., P.A.**
Clinical Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**COL Charles Engel, M.D., M.P.H. MC, USA**
Associate Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Martha Faraday, Ph.D.**
Assistant Professor
Department of Medical and Clinical Psychology
F. Edward Hebert School of Medicine
Uniformed Services University

**Brian W. Flynn, Ed.D.**
Adjunct Professor, Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Michael C. Freed, Ph.D.**
Research Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Carol S. Fullerton, Ph.D.**
Research Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Frances Gabbay, Ph.D.**
Research Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**COL Gary Gackstetter, USAF**
Associate Professor
Department of Preventive Medicine/Biometrics
F. Edward Hebert School of Medicine
Uniformed Services University

**Robert K. Gifford, Ph.D.**
Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Krisitie Gore, Ph.D.**
Research Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Christine Gray, M.P.H.**
Public Education Program Manager
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Thomas A. Grieger, M.D.**
Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Jennifer Guimond, Ph.D.**
Research Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Maj. Derrick Hamaoka, M.D., USAF, MC, FS**
Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Harry C. Holloway, M.D.**
Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Tomoko I. Hooper, M.D.**
Assistant Professor
Department of Preventive Medicine/Biometrics
F. Edward Hebert School of Medicine
Uniformed Services University

**Luke Johnson, Ph. D.**
Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Elie Karam, M.D.**
Professor and Chairman
Department of Psychiatry
American University — Beirut
Beirut, Lebanon

**Joceyln Kilgore, M.D.**
Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**He Li, M.D., Ph.D.**
Associate Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Xian Liu, Ph.D.**
Research Assistant Professor
Deployment Health Clinical Center
Walter Reed Army Medical Center

**David Marlowe, Ph.D.**
Senior Lecturer
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**James E. McCarroll, Ph.D., M.P.H.**
Research Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Jodi McKibben, Ph.D.**
Research Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Jamie Naifeh, Ph.D.**
Research Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**John Newby, Ph.D.**
Research Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**LCDR Patcho Santiago, M.D., M.P.H., MC, USN**
Assistant Professor
CSTS
F. Edward Hebert School of Medicine
Uniformed Services University

**Janet A. Schmidt, Ph.D.**
Senior Scientist
CSTS
F. Edward Hebert School of Medicine
Uniformed Services University

**John A. Stuart, Ph.D.**
Research Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**E. Fuller Torrey, M.D.**
Executive Director
Stanley Medical Research Institute
Bethesda, MD

**Robert J. Ursano, M.D.**
Chairman, Department of Psychiatry
Professor of Psychiatry and Neuroscience
F. Edward Hebert School of Medicine
Uniformed Services University

**Nancy T. Vineburgh, M.A.**
Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Maree J. Webster, Ph.D.**
Assistant Research Professor
Stanley Medical Research Institute
Bethesda, MD 20889

**Lars Weisaeth, M.D.**
Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

**Kathleen Wright, Ph.D.**
Deputy Chief
Department of Military Psychiatry
Division of Neuropsychiatry
Walter Reed Army Institute of Research

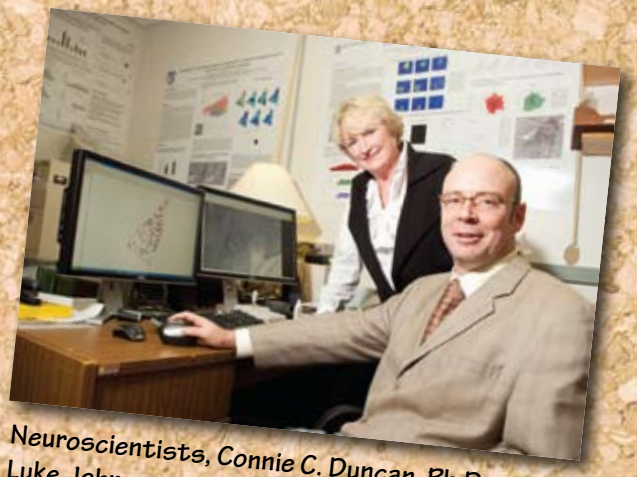
**Lei Zhang, M.D.**
Assistant Professor
Department of Psychiatry
F. Edward Hebert School of Medicine
Uniformed Services University

# Around CSTS

Research assistants, LaKesha Henry and Mara Huber with CSTS Child and Family Associate Director, Stephen Cozza, M.D.

Managing the interface of USU's Dept. of Psychiatry and CSTS are Dr. Ursano, USU Dept. of Psychiatry Chair and CSTS Director, and Alice Fladung, Administrative Officer.

Research psychologists, Jodi McKibben, Ph.D. and Quinn Biggs, Ph.D. reviewing analyses for Florida Dept. of Health Workers Hurricane Data, a project directed by Dr. Fullerton.



Neuroscientists, Connie C. Duncan, Ph.D. and Luke Johnson, Ph.D.

Center scientist, Patcho Santiago, M.D., M.P.H., Lieutenant Commander, Medical Corps, U.S. Navy and Joey Piemontese, CSTS Information Technology Specialist, add new content to Center site, cstsonline.org.

Jennifer Stecklein, USU Program Administration Specialist, displays a Courage to Care fact sheet with Nancy Vineburgh, CSTS Associate Director, Office of Public Education and Preparedness.


**Center for the Study of Traumatic Stress**
**Uniformed Services University of the Health Sciences**
**4301 Jones Bridge Road, Bethesda, MD 20814-4799**
**Tel: 301-295-2470 | Fax: 301-319-6965**
**www.usuhs.mil/csts | www.CSTSonline.org**