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TITLE: Bioterror Preparedness-Educational Programming for Military, Public Health and Civilian Medical Personnel

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# REPORT DOCUMENTATION PAGE

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<b>13. SUPPLEMENTARY NOTES</b>						
<b>14. ABSTRACT</b>  This research focuses on how delivery formats and level of interactivity affect the assimilation and retention of information on bioterrorism threats and treatments. We are comparing live meetings presented in a didactic format vs active learning format, web based education in a didactic vs active learning format, PDA based format, and printed monograph based format. The research will focus on the effectiveness of distance learning and self-study methodologies regarding factors and characteristics that improve retention and assimilation of this information into practice. We have recruited a panel of 22 experts in the field of biopreparedness and infectious diseases to develop program content. The first of two live meetings has taken place. Initial data from this first meeting has been collected, tabulated and is being analyzed. A second live meeting will take place in January of 2007. Web based programs, a print monograph, and a PDA based program are being developed.						
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## INTRODUCTION

There has been significant investigation of learning for health care providers through the years. Much of that investigation has dealt particularly with physician education. The findings have varied. We know that physicians tend to prefer live educational activities.<sup>1</sup> For this reason, it is seen as a gold standard – it is the easiest and best way to reach the target audience. The audience believes this is the most effective way for them to receive education, so this is what they look for in learning.

Despite these results, however, there are some studies suggesting other methods of education as preferable to live meetings. For example, widely used CME delivery methods such as conferences have little direct impact on improving professional practice. More effective methods such as systematic practice-based interventions and outreach visits are seldom used by CME providers.<sup>2</sup> A conclusion from another study suggests that there are not any "magic bullets" for improving the quality of health care and education of physicians, but there is a wide range of interventions available that could lead to important improvements in professional practice and patient outcomes.<sup>3</sup>

We also know that there has been some study of other methods of education in the field of bioterrorism. For example, it has been found that screensavers and Web sites can be used to increase awareness of bioterrorism. Web-based education may provide an effective means of education for bioterrorism.<sup>4</sup> However, the results were not clear-cut and create opportunities for further exploration.

A follow up study on bioterrorism education found few differences between different educational methods. In the study, presented at the ACME annual conference, two interesting results were seen. First, there was no difference in retained knowledge between any of the types of activity formats.<sup>5</sup> Retention was similar for all types of activities. Second, participants who received their original education via live events preferred live activities for all bioterrorism education, while people who received their original education via enduring materials would repeat that method.<sup>6</sup> This is not unexpected, but reminds us that people will follow original education patterns in additional activities.

To address the uncertainty shown in the literature, the Annenberg Center for Health Sciences at Eisenhower is conducting research into the learning patterns in health care providers as it relates to bioterrorism education. We are examining educational activities delivered in a variety of formats to ascertain the optimal methods for delivering this education. Our research focuses on how delivery formats and level of interactivity affect the assimilation and retention of information on biopreparedness related topics. We include study of the effectiveness of live meetings, distance learning and self-study methodologies regarding factors and characteristics that improve retention and assimilation of this information into practice.

Specifically, we are addressing the following questions:

1. Does the clinical topic impact effectiveness of different delivery formats in learning and retention for health care providers?
2. Do different delivery formats affect learning among health care providers?
3. Do different delivery formats affect retention among health care providers?
4. Do different levels of interactivity affect learning among health care providers?
5. Do different levels of interactivity affect retention among health care providers?

This research project is conducted in collaboration with the California State University at San Bernardino, and its Institute for Applied Research & Policy Analysis, USAMRIID, and the Center for Biosecurity and Public Health Preparedness at the University of Texas Health Science Center at Houston. We anticipate identifying optimal learning formats to disseminate this information and maximize retention.

The programming and core of this educational process specifically focuses on Category A (as defined by the Centers for Disease Control, USAMRIID, WHO and The National Institutes of Health) agents including the established pathogens smallpox and anthrax, but will also include information on and applicable to Category B and C agents, avian influenza, and other emerging pathogens. The project has brought together the nation's top thought leaders to develop consensus information on intelligently targeted awareness, appropriate preparation both pre- and post-exposure, including pre- and post-exposure vaccinations and other prophylactic and therapeutic responses, as well as diagnosis and containment strategies for managing these infectious agents.

## **BODY**

### **Research Study Design & Survey Development:**

#### Study Design

We designed a prospective quantitative study looking at the outcomes and retention of various methods of delivering educational content. Our model involves the presentation of educational material related to bioterrorism to different groups of healthcare learners as follows:

This research study design was developed in collaboration with the California State University at San Bernardino, and it's Institute for Applied Research & Policy Analysis.

**Live presentation:** Two groups will receive the content in a live presentation using a lecture-based format. One group will hear the material in a traditional lecture format, without active participation. A second group will also attend a live presentation; however, in that session, active learning techniques will be utilized to involve participants.

**Distance learning:** Additional groups will receive their information through distance learning via a web based presentation. We will present three bioterrorism topics to different groups. For each topic, one group will be exposed to the content without active involvement while a second group will participate utilizing active learning techniques.

Immediately prior to the educational activity, participants will be given a pretest. The pretest material will also have an explanation of the scope of the research. Participants will have the option to “opt out” of the aggregate data collection from the research but still be allowed to participate in and receive credit for the educational activity itself.

Immediately following the educational activity, participants will be given a posttest. The posttest will consist of objective questions. Three months after the activity, participants will be sent a follow up posttest. This follow up posttest will also include objective questions and questions based on a case study. Six months after the activity, participants will be sent a follow up posttest. This follow up posttest will also include objective questions and questions based on a case study. Additionally, participants will also be asked to take part in a brief test to ascertain particular learning styles as based on a Visual-Auditory-Kinesthetic (VAK) understanding of learning.

A statistical analysis of the accumulated data will then be performed. Within group scores will be tracked to ascertain efficacy of each particular format for learning and retention of material over time. Between group ratings will reflect comparisons of learning formats for both learning and retention. Confounding variables will be considered in the between group comparisons.

#### Survey/Study Tool Development

In preparation for the first live meeting, a pre- and post-test were developed. Development began with a discussion between ACHS personnel and the statistical consultants at the Institute of Applied Research and Policy Analysis at California State University, San Bernardino (IAR). This discussion led to an identification of the demographic information necessary to obtain valid and measurable data from the tests. Demographic data collection will allow us to evaluate results based on civilian/military status, age, area of practice, and position. In the follow-up period, we will add a category that ascertains the level of use the participant has had for the material over the follow-up period. Final demographic variables selected and design of the questionnaire was reviewed and approved by the IAR as gathering appropriate and statistically valid information.

Faculty for the live program were identified and content was developed. From the overall agenda for the live meeting, the Steering Committee identified the core areas of knowledge that should be utilized in the research. Specifically, they identified core competencies in avian influenza, smallpox and other orthopoxes, anthrax, and toxins (specifically botulinum toxin and ricin). That content was received from faculty and reviewed by ACHS and the Steering Committee.

From the content, first draft pre and post-tests were written by ACHS staff. These drafts were sent to the faculty for each core competency. Comments and revisions were incorporated into final versions that were approved by the faculty and Steering Committee as accurately reflecting the desired key learning in the content areas.

#### Survey/Study Tool Validation

The developed pre and post tests were then reviewed by Donna Rane Stozek, our research consultant, and the IAR. The test was also distributed to members of the physician (pulmonologists and intensivists) and nurse practitioner (intensivist and infectious disease) target audience at Eisenhower Medical Center in Rancho Mirage, CA to ascertain prior knowledge and appropriateness of the test. They missed an average of 3.5 questions (50%) in the smallpox section; 2 (29%) in the influenza section; 2.5 (50%) in anthrax; and 4 (80%) in the toxin section. These numbers indicated a test that would adequately reflect baseline and learned knowledge.

A copy of the Pre and Post tests are attached in the Appendix.

## **Develop and Conduct Live Meeting 1 – Didactic Format**

### **Faculty Recruitment and Content Development**

A Content Planning Committee for the development of program content was recruited and convened via phone. This committee consisted of the following individuals:

<b>ACHS staff</b>	
<b>Louisa Chapman, MD, MSPH</b>	National Center for Infectious Diseases, CDC
<b>Bob Howard, PhD, MPH</b>	President and CEO of Howard & Associates and former Director of Strategic Communications at the National Center for Infectious Disease, CDC
<b>Scott Lillibridge, MD</b>	Professor of Epidemiology, University of Texas Health Science Center at Houston School of Public Health
<b>COL. James Martin</b>	USAMRIID
<b>CJ Peters, MD</b>	John Sealy Distinguished University Chair in Tropical and Emerging Virology, UT Galveston and former Chief of Special Pathogens at Centers for Disease Control and the former Chief of the Disease Assessment Division at USAMRIID

We convened multiple planning teleconferences with all or subsets of the committee to discuss selection of program topics, general direction of focus for each topic, and discussion of appropriate faculty to present those topics. The committee ultimately selected the program topics based on their experience and assessment of knowledge gaps in this area. They helped guide the finalization of program content, working with us and the individual faculty to tailor each educational presentation.

Nancy Volk, Director of Project Management, and George Hurrell, EVP and project PI, conducted a planning meeting with Drs. Scott Lillibridge, and Robert Howard at the University of Texas in Houston on April 3, 2006. Planning teleconference calls were conducted on 3/23/06, 4/10/06, 5/05/06, 5/22/06, 5/25/06, 5/26/06, 6/6/06, and numerous other dates with various members of the content planning committee. Numerous planning meetings both live and via telephone were conducted with Donna Rane-Szostak, EdD APRN BC, the Institute for Applied Research (IAR) and Gordon West PhD, regarding study design and further studies planned for this topic.

A copy of the program syllabus, including final agenda, program faculty and biographies, and CME accreditation information is attached in the appendix.

### **Venue Selection for Live Meeting 1.**

Nancy Volk conducted a site visit at potential meeting venues in Houston, TX April 4, 2006 and selected a meeting hotel. A contract was signed with the Houston Marriott Medical Center Hotel to reserve space for our program, to be held September 22-23, 2006.

Our initial live program (Live Meeting 1), took place in Houston Texas, September 22-23, 2006. This program was delivered in a traditional didactic format. Our second live program will also be conducted in Houston and will take place January 12-13, 2007, a slippage from our expected completion before the end of 2006. The committee felt it



would be better for attendees to keep the program away from the holiday season. Both programs will be held in conjunction with University of Texas in Houston, at the Houston Marriott Medical Center, close to the UT and affiliated campuses. Our research committee agreed that holding the meeting in one location would control for venue bias in our study. We also believed that the academic affiliation with the University of Texas, well known for its work in Biopreparedness, would attract participants.

#### Audience generation

A Program Announcement was developed and 15,000 copies were printed and mailed. A program brochure was developed and 35,000 copies were printed and mailed. A program flyer was also developed, and 37,000 copies were printed and mailed. The initial announcements were mailed the week of July 3<sup>rd</sup>, and multiple waves of mailings, email and phone follow up continued until the date of the program to create awareness about this program. Mailing and email lists included physicians, nurses and pharmacists involved in public health, infectious disease, pulmonology, emergency medicine, hospital and intensive care, and primary care. Armed Forces medical personnel were invited through these lists, as well as Armed Forces Medical Facility specific promotion to facility leadership.

Copies of a proposed brochure cover and our Program Announcement are attached in the Appendix.

#### Program Attendance / Participation in Research

Approximately 165 people attended the live meeting in Houston September 22-23, 2006. Of those, 81 agreed to participate in the educational research and completed both the pre- and post-tests. An additional group of participants completed the post-test only. They will not be included in the full research, but may be followed for learning retention over the next 6 months. Several people took the pre-test but opted not to have their data included in the final numbers. Their request was honored and they are not included in the 81.

### **Develop and Conduct Live Meeting 2 – Interactive Format**

#### Faculty Recruitment

Planning Committee members have been recruited and are returning to help plan the second meeting. Key faculty selected for Live Meeting 2 were notified of the second program and invited to again participate. Six of the ten key research topic faculty have already confirmed availability. Program topics and agenda will be finalized, and program faculty will be invited and confirmed by the end of October, 2006.

#### Collaborate with faculty to develop interactive program

The interactive format we will employ is still being discussed with faculty and research educators. We will utilize an Audience Response System (ARS) to engage the audience. The feedback from questions the audience answers will guide the speakers in their discussion. Further interaction between the audience and the presenter, as well as the

audience members among themselves, will be created by utilizing various scenarios. More time will also be allocated for audience questions and discussion.

#### Format and finalize presentation materials

We are beginning work this month to format and modify presentations on the research topics and other segments to utilize the active learning methods identified above. This portion has slipped from our original milestone completion date of September 2006, because we did not want to confuse faculty prior to our September didactic live meeting, and because we still are recruiting new faculty for the January program.

#### Venue selection for Live Meeting 2

A contract was signed with the Houston Marriott Medical Center Hotel to reserve space for our program, to be held January 12-13, 2007. We considered moving the program to another geographic location, but felt the continuity of conducting the program in Texas was important for the audience and our research.

#### Audience generation

A Program Announcement is in development and will be printed and mailed by October 20, 2006. Program brochures will be developed upon confirmation of the final program faculty and program agenda. Mailing and email lists will include physicians, nurses and pharmacists involved in public health, infectious disease, pulmonology, emergency medicine, hospital and intensive care, and primary care from across the United States. Armed Forces medical personnel were invited through these lists, as well as Armed Forces Medical Facility specific promotion to facility leadership.

#### **Develop Didactic Web program – Topic A**

##### Faculty recruitment and content development

From the overall agenda for the live meeting, the Steering Committee identified avian influenza, smallpox and other orthopoxes, anthrax, and toxins (specifically botulinum toxin and ricin) as clinical topics for our research project. Topic A will be selected from these.

All faculty presentations from the Live Meeting 1 were videotaped during the program. Faculty members separately then recorded additional audio components necessary for the Web presentations of their material for avian influenza, smallpox and orthopoxes, and toxins. Faculty also reviewed and edited questions to be used for participants in the Web programs.

##### Web Design and Programming

Planning calls with our contracted web developer took place during August and September. Discussion around randomization of participants between didactic and interactive formats resulted in the design of a web interface for the two programs that will automatically randomize participants into either the didactic or the interactive versions upon registration by the participant. Format for the didactic version will consist of an easily navigable interface containing a video window of the presenter, with a

synchronized slide window of their presentation. Programming for the didactic program will take place in October of 2006, and will be reviewed and finalized by November 30, 2006.

#### Promotion and Audience Generation

As identified above, we will present a web interface that will automatically randomize participants into either the didactic or the interactive version of each research content topic upon registration by the participant. Promotion of the program will be delayed to coincide with the completion of the interactive version each content topic, and the brochures will present the programs as one program on the clinical topic because the two versions will be blinded to participants. We anticipate initial mailing of program brochures to take place January 15, 2007.

### **Develop Interactive Web Program – Topic A**

#### Faculty Recruitment and Content Development

From the overall agenda for the live meeting, the Steering Committee identified avian influenza, smallpox and other orthopoxes, anthrax, and toxins (specifically botulinum toxin and ricin) as clinical topics for our research project. Topic A will be selected from these.

#### Design of Interactive Format

The interactive component of the Web-based activities will be based on the experience of others in Web learning, combined with discussions with our educational research consultants. Participants will find, interspersed among the presentation, questions that they must answer. Based on their answer, their next slide will reflect either why their choice was correct or an explanation of why it was not correct. Also interspersed in the presentation will be the opportunity for participants to click on links directing them to other web sites for further information on a specific topic. There will also be a site for participants to use for follow up questions that will be answered within a set period of time, allowing them to more personalize the information they receive.

All program presentations from the Live Meeting 1 were videotaped. Faculty members separately then recorded additional components necessary for the Web presentations of their material for avian influenza, smallpox and orthopoxes, and toxins. These recordings included some of the material needed for the interactive versions of their Web presentations. Faculty also reviewed and edited questions to be used for participants in the Web programs.

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synchronized slide window of their presentation. Participants will be presented with questions throughout the program, and their answers will be recorded. Conditionally branched audio educational modules will be presented based on each participant's response. External links to additional educational resource materials will be provided and participants will then be able to return to the program presentation. Programming for the interactive program will take place in November of 2006, and will be reviewed and finalized by January 15, 2007.

### **Interim Analysis and Reporting**

#### **Data from Live Meeting 1**

Approximately 165 people attended the live meeting in Houston September 22-23, 2006. Of those, 81 agreed to participate in the educational research and completed both the pre- and post-tests. An additional group of participants completed the post-test only. They will not be included in the full research, but may be followed for learning retention over the next 6 months. Several people took the pre-test but opted not to have their data included in the final numbers. Their request was honored and they are not included in the 81. The data were transcribed by an administrative staff member who assigned each participant a number, allowing participants to be blinded to the researchers. These numbers will be used to track responses throughout the follow-up period. All data from the first live meeting have been sent to the Institute of Applied Research and Policy Analysis at California State University, San Bernardino for analysis.

Initial review of the data indicates a good mix of the health care professions we sought as participants. There were also several groupings of participants represented: military, academics, and public health providers. Others attended, but these appear to have been the most represented groups.

### **ADDITIONAL SOW MILESTONES COVERED UNDER CONTRACT MODIFICATION P0002 EFFECTIVE 8/29/06.**

#### **Develop Didactic Web Programs on Topics 1 and 2**

##### **Faculty recruitment and content development**

From the overall agenda for the live meeting, the Steering Committee identified avian influenza, smallpox and other orthopoxes, anthrax, and toxins (specifically botulinum toxin and ricin) as clinical topics for our research project. Topics 1 and 2 will be selected from these.

All faculty presentations from the Live Meeting 1 were videotaped during the program. Faculty members separately then recorded additional audio components necessary for the Web presentations of their material for avian influenza, smallpox and orthopoxes, and toxins. Faculty also reviewed and edited questions to be used for participants in the Web programs.

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### **Promote and Generate Audience for Didactic Web Programs on Topics 1 and 2**

#### Promotion and Audience Generation

As identified above, we will present a web interface that will automatically randomize participants into either the didactic or the interactive version of each research content topic upon registration by the participant. Promotion of the program will be delayed to coincide with the completion of the interactive version each content topic, and the brochures will present the programs as one program on the clinical topic because the two versions will be blinded to participants. We anticipate initial mailing of program brochures to take place January 15, 2007.

### **Develop Interactive Web Programs on Topics 1 and 2**

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#### Design of Interactive Format

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Progress on the following SOW milestones will be addressed in future reports.

**Promote and Generate Audience for Interactive Web Programs on Topics 1 and 2**

**Develop Print Based Monograph on 2-3 Topics (Selected from Topics A, 1, and 2)**

**Develop 2 PDA Accessible Text Based Programs on One Topic (Selected from Topics A, 1, and 2)**

**Administer Follow Up Survey/Post Tests at 3 Months and 6 Months Following Each Educational Activity**

**Analysis and Final Write Up**

## KEY RESEARCH ACCOMPLISHMENTS

- Development of research study design
- Development and validation of survey/study tool
- Recruitment of content planning committee
- Recruitment of expert faculty in the field of bioterrorism and biopreparedness
- Development of 1.5 day live educational program content and logistics planning
- Promotion of program that generated 165 participants and 81 research subjects
- Capture of live program for development of web based program

## REPORTABLE OUTCOMES

We have conducted a very well received live meeting which brought together the top thought leaders in the field of bioterrorism, public health and infectious disease. More than 160 healthcare professionals attended this program. Twenty educational lectures were presented. All presentations were videotaped for future use.

## CONCLUSIONS

We have conducted our first live meeting and received very positive feedback from attendees and faculty. Initial data collected from participants has been tabulated and submitted for analysis. We believe that this project will be one of the very few controlled studies in the field of adult health care professional education, and to our knowledge, the only research study of this magnitude on the topic of biopreparedness. We anticipate the results of our research into learning and retention will help identify cost effective educational formats on the topic of biosecurity, helping enhance our Country's readiness to respond to a biological event. This research will help advance the field of healthcare worker continuing education (CE/CME) and adult learning by expanding our understanding of healthcare provider educational efficacy. This research is also extremely applicable to the military community, and could augment the chemical, biological, radiological, nuclear and explosive training that is taught within each military service. Understanding the effectiveness of distance learning formats would positively compliment the mobile lifestyle of both active and veteran Service Members, and provide insights to more cost effective dissemination of important clinical and management information to healthcare personnel.

## REFERENCES

- 
- <sup>1</sup> Pelletier S. Docs say yes to meetings. *Medical Meetings* 2004; 31:24-31.
  - <sup>1</sup> Results from a 2003 survey of members as reported by the American Academy of Family Practice.
  - <sup>2</sup> Davis DA, Thomson MA, Oxman AD, and Haynes RB. Changing physician performance. A systematic review of the effect of continuing medical education strategies. *JAMA* 1995; 274:700-705.
  - <sup>3</sup> Oxman AD, Thomson MA, Davis DA, Haynes RB. No magic bullets: a systematic review of 102 trials of interventions to improve professional practice. *CMAJ*. 1995 Nov 15; 153(10):1423-31.
  - <sup>4</sup> Terndrup T, Nafziger S, Weissman N, Casebeer L, Pryor E. Online bioterrorism continuing medical education: development and preliminary testing. *Acad Emerg Med*. 2005 Jan;12(1):45-50.
  - <sup>5</sup> Andrade L, Biddle S, Miller M, Waller A. Outcomes of CME on bioterrorism – A collaborative assessment. Presentation at the ACME annual conference. January 22, 2004. Slide 46.
  - <sup>6</sup> Ibid, slide 32.

**APPENDICES (see next page)**



**Final Live Program 1 Pre-test and Post-test document (attached)**

# The Science and Strategy of **BIO**preparedness

Critical Agent Update  
and Emerging Disease Threats

September 22 and 23, 2006 / Houston, Texas

## Pre-Test

PLEASE PRINT CLEARLY

Name \_\_\_\_\_  
First M.I. Last

Daytime Phone ( ) \_\_\_\_\_

Affiliation \_\_\_\_\_

E-mail \_\_\_\_\_

Specialty \_\_\_\_\_

Date of Birth / /

Street Address (  home or  work ) \_\_\_\_\_

Gender:  Male  Female

Are you:  Military  Civilian

City \_\_\_\_\_

Are you a:  Physician  Nurse/NP

Pharmacist  Public Health Official

State \_\_\_\_\_ Zip \_\_\_\_\_

Other \_\_\_\_\_

The Annenberg Center is conducting research into health care providers' learning. We will be accumulating the data from the pre- and post-tests, along with the demographic information. The information will be gathered in a completely anonymous accumulation. If you do not want your results included in the accumulated data, please check below.

I do not want my data included in the cumulative data.

Please fill in the most correct answer to each question.

### SMALLPOX

**1. Smallpox is a viable agent of bioterrorism because:**

- a. It is relatively easy to grow in large amounts
- b. Is unaffected by significant temperatures
- c. Can remain viable in the air
- d. A and C

**2. A logical method of dissemination of smallpox in bioterrorism would be:**

- a. A suicidal terrorist infecting him/herself and exposing others
- b. A small plane flying over a major event and spraying aerosol
- c. An aerosol planted inside a major building or airplane or subway
- d. A and C

**3. The spread of smallpox:**

- a. Is through large respiratory droplets from person to person
- b. Is highly infectious compared to diseases like SARS and measles
- c. Can be spread by patients even when they are not visibly ill
- d. A and B

**4. Issues for smallpox pre-event vaccination include:**

- a. Serious adverse events may occur
- b. Deaths would occur if the population were vaccinated
- c. Immunocompromised patients are especially vulnerable
- d. All of the above

**5. Issues in surveillance/containment strategy in smallpox include:**

- a. There are subclinical carriers of the disease
- b. Vaccination post-infection can limit the disease
- c. Patient contacts (potential infectees) will be reluctant to come forward
- d. A and B

**6. There are concerns about third generation smallpox vaccines because:**

- a. Human trials are not possible
- b. There is no proven surrogate marker for immunity
- c. Animal models are not optimal
- d. All of the above

**7. In the event of a smallpox event:**

- a. Lab testing can rapidly identify patients with the disease
- b. Cidofovir has no real impact on the disease
- c. Smallpox can spread like wildfire
- d. A and B

## INFLUENZA

- Human H1N1 and H3N2, but not avian H5N1 viruses ( $\alpha$  2-3 sialic acid receptor preference), spread to naïve contact ferrets by droplet transmission.**
  - True
  - False
- The 1918 virus possessing the “avian” HA ( $\alpha$  2-3 sialic acid receptor preference) exhibited efficient replication and was capable of transmission between ferrets.**
  - True
  - False
- Important considerations for the control of pandemic influenza include:**
  - a. Prevention of the emergence of a pandemic
  - b. Delaying the spread of influenza
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  - d. All of the above
- Antivirals for pandemic influenza:**
  - a. Should be cheaper than vaccines
  - b. If effective, should work for all type A subtypes (H5, H9, etc.)
  - c. Widespread viral resistance will prevent their use
  - d. Are more powerful than vaccines
- Influenza A viruses:**
  - a. Viruses only evolve to a certain extent
  - b. There is a broad host range, including humans, birds, and other species
  - c. All types of Influenza A viruses circulate in wild birds, while about half routinely infect humans
  - d. B and C
- H5N1 is an avian influenza that:**
  - a. Is becoming less common in poultry in Asia
  - b. Shows limited human-to-human transmission
  - c. Is the most concerning current candidate to cause a human pandemic
  - d. B and C
- When the next pandemic occurs, issues in prevention and control include:**
  - a. Many antiviral drugs will be available to meet needs
  - b. Vaccine production will require months
  - c. Antivirals will be expensive to produce
  - d. B and C

## ANTHRAX

- Symptoms in the initial phase of inhalational anthrax include:**
  - a. Non-specific flu-like symptoms
  - b. Dry, cool skin
  - c. Productive cough
  - d. A and B
- Symptoms in the severe phase of inhalational anthrax include:**
  - a. Cool, clammy skin
  - b. Shock
  - c. Near normal body temperatures
  - d. A and B

- In anthrax exposure, which of the following is true of post exposure antibiotic use?**
  - a. Leaves no remaining spores
  - b. Antibiotics maintain efficacy significantly after the last dose
  - c. May be supplemented with 3 doses of anthrax vaccine
  - d. B and C
- Questions still remaining about anthrax vaccines include:**
  - a. What is an appropriate pediatric dose?
  - b. What is the simplest regimen for vaccination prior to exposure?
  - c. What is the optimal dosage schedule for adult vaccines?
  - d. All of the above
- Anthrax post exposure prophylaxis may be best when it includes:**
  - a. Antibiotics plus vaccine before illness onset
  - b. Finite duration prophylaxis with antibiotics for large doses of spores
  - c. Post-exposure immunization may lengthen the period of antibiotic prophylaxis necessary for protection
  - d. B and C

## TOXINS

- Diagnostic features of botulism toxin exposure include:**
  - a. Symmetric descending flaccid paralysis with normal cerebrospinal fluid
  - b. Febrile andx positive immunoassay
  - c. Alert with antibody development
  - d. A and B
- Medical management for botulism toxin exposure includes:**
  - a. Anti-toxin
  - b. Intubation and ventilatory assistance
  - c. Intensive supportive care
  - d. All of the above
- In botulism toxicity:**
  - a. Recovery is often rapid when appropriately treated
  - b. Due to anti-toxin use, outcomes similar for early and late detection
  - c. Anti-toxin only neutralizes circulating toxin
  - d. A and C
- Ricin toxicity shows itself:**
  - a. After a latency of approximately 12 hours
  - b. In nausea, vomiting, abdominal cramping
  - c. In effects on liver and kidneys with no other organ involvement
  - d. A and B
- Medical management for ricin toxicity includes:**
  - a. Similar supportive care regardless of route of exposure
  - b. Monitoring of fluid balance and hemodynamics in inhalation exposure
  - c. Being careful not to induce further vomiting after oral intoxication
  - d. B and C

# The Science and Strategy of **BIO**preparedness

Critical Agent Update  
and Emerging Disease Threats

September 22 and 23, 2006 / Houston, Texas

## Post-Test

Name (Please PRINT clearly) \_\_\_\_\_

First

M.I.

Last

Please fill in the most correct answer to each question.

### SMALLPOX

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- True
- False

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**Final Live Program 1 Syllabus Front Matter:  
Agenda, Faculty, Accreditation information (attached)**



The Science and  
Strategy of  
**BIO***preparedness*

Critical Agent Update  
and Emerging Disease Threats

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**September 22 and 23, 2006**  
**Marriott Houston Medical Center**  
**Houston, Texas**



**ANNENBERG CENTER  
FOR HEALTH SCIENCES  
AT EISENHOWER**



**THE UNIVERSITY of TEXAS**  
**SCHOOL OF PUBLIC HEALTH AT HOUSTON**

*A part of The University of Texas Health Science Center at Houston*



ANNENBERG CENTER  
FOR HEALTH SCIENCES  
AT EISENHOWER



THE UNIVERSITY of TEXAS  
SCHOOL OF PUBLIC HEALTH AT HOUSTON  
*A part of The University of Texas Health Science Center at Houston*

September 2006

Dear Colleague,

Welcome to *The Science and Strategy of Biopreparedness*. This important two-day program is intended to keep physicians, nurses and other health care professionals up-to-date on some of the most pressing issues of the times.

In recent years, concerns about matters ranging from bioterrorism to emerging infectious diseases have been widely discussed within medical circles and in the media. Each of these problems presents its own set of challenges, and requires the rapid distribution of cutting-edge information and the development of new technologies.

In this symposium, a faculty of leading experts from throughout the United States will examine what we currently know about biological threats and strategies for biosecurity. Issues like anthrax, smallpox, and botulism will be highlighted, including the role of the laboratory in detecting pathogens. You'll also hear about the risks of emerging infections, such as avian influenza, and how outbreaks can be treated and managed, now and in the future.

In a panel discussion, we'll explore public awareness of current threats, and the role of the media. We'll also assess zoonotic infectious agents, and approaches to prevention and control.

During our time together, I encourage you to take the opportunity to ask questions and contribute your own ideas. On behalf of the program's planning committee, we're looking forward to this exchange of information and insights. I hope you'll find this meeting worthwhile.

Sincerely,

A handwritten signature in cursive script that reads "Scott R. Lillibridge, M.D.".

Scott R. Lillibridge, MD  
Health Science Center at Houston  
Center for Biosecurity and Public Health Preparedness  
Houston, TX



# I N D E X

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## AGENDA

### CONTINUING EDUCATION

Learning Objectives, Faculty Disclosure  
Accreditation, Evaluation, Faculty

### DAY 1 PRESENTATIONS

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#### **Welcome, Introduction, Setting the Stage**

Scott Lillibridge, MD

#### **Interaction Between Emerging Infections and Bioterrorism: What Are the Risks and Threats?**

C.J. Peters, MD

#### **Avian Influenza**

Ruth Berkelman, MD;

Louisa Chapman, MD; Terrence M. Tumpey, PhD; Robert B. Couch, MD

#### **Anthrax**

Philip Brachman, MD, MSPH; John Grabenstein, RPh, PhD

#### **International Science and Biosecurity**

David R. Franz, DVM, PhD

#### **Smallpox and Other Orthopoxes**

J. Michael Lane, MD

#### **Toxins**

Jeremy Sobel, MD, MPH; LTC Zygmunt F. Dembek, PhD, MS, MPH

#### **Emerging Zoonoses: The Challenge for Public Health, Biodefense and the Infectious Disease Sciences**

Frederick A. Murphy, DVM, PhD

#### **Globalization, Biosecurity and the Future of Life Sciences**

Stanley M. Lemon, MD

### DAY 2 PRESENTATIONS

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#### **FROM BIOLOGICAL THREAT TO BIOSECURITY: IMPLICATIONS FOR PREPAREDNESS**

#### **Hot Zones to War Zones: Critical Pathogens/Implications for Preparedness**

Ronald Blanck, DO; Edward M. Eitzen, Jr., MD

#### **The Media and Biopreparedness**

Robert Howard, PhD, EMBS, MPH; Luran Neergaard; Kathy McManus

#### **PUBLIC HEALTH PREPAREDNESS**

#### **Strategies for Protecting our Population Through Early Detection**

Ruth Berkelman, MD

#### **Outbreak Preparedness: The EMS Connection**

Jeffrey Rubin, PhD

#### **Role of the Laboratory in Public Health Preparedness**

Carol Glaser, DVM, MPVM, MD

#### **Closing Remarks**

VADM Richard H. Carmona, MD, MPH, FACS

The Science and  
Strategy of  
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Critical Agent Update  
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**September 22 and 23, 2006**  
**Marriott Houston Medical Center, Houston, Texas**

*Symposium Agenda*

**DAY 1, FRIDAY, SEPTEMBER 22**

- 7:00 – 8:00 **Breakfast**
- 8:00 – 8:15 **Welcome, Introduction, Setting the Stage**  
Scott Lillibridge, MD
- 8:15 – 9:00 **Interaction Between Emerging Infections and Bioterrorism:  
What Are the Risks and Threats?**  
C.J. Peters, MD
- 9:00 – 10:15 **Avian Influenza**  
Ruth Berkelman, MD, Moderator  
Louisa Chapman, MD  
Terrence M. Tumpey, PhD  
Robert B. Couch, MD
- 10:15 – 10:45 **Break**
- 10:45 – 12:00 **Anthrax**  
Philip Brachman, MD, MSPH  
John Grabenstein, RPh, PhD
- 12:00 – 1:00 **Lunch**
- 1:00 – 1:45 **International Science and Biosecurity**  
David R. Franz, DVM, PhD
- 1:45 – 2:45 **Smallpox and Other Orthopoxes**  
J. Michael Lane, MD
- 2:45 – 3:15 **Break**
- 3:15 – 4:15 **Toxins**  
Jeremy Sobel, MD, MPH  
LTC Zygmunt F. Dembek, PhD, MS, MPH
- 4:15 – 5:00 **Emerging Zoonoses: The Challenge for Public Health, Biodefense and the  
Infectious Disease Sciences**  
Frederick A. Murphy, DVM, PhD
- 5:00 – 5:45 **Globalization, Biosecurity and the Future of Life Sciences**  
Stanley M. Lemon, MD
- Q&A, Closing Remarks**
- 7:00 – 9:00 **Dinner** – Trevisio's Restaurant

## DAY 2, SATURDAY, SEPTEMBER 23

7:00 – 7:45 *Breakfast*

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### **FROM BIOLOGICAL THREAT TO BIOSECURITY: IMPLICATIONS FOR PREPAREDNESS**

7:45 – 8:45 **Hot Zones to War Zones: Critical Pathogens/Implications for Preparedness**

Ronald Blanck, DO  
Edward M. Eitzen, Jr., MD

8:45 – 9:45 **The Media and Biopreparedness**

Robert Howard, PhD, EMBS, MPH, Moderator  
Lauran Neergaard  
Kathy McManus

9:45 – 10:00 *Break*

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### **PUBLIC HEALTH PREPAREDNESS**

10:00 – 10:45 **Strategies for Protecting our Population Through Early Detection**

Ruth Berkelman, MD

10:45 – 11:15 **Outbreak Preparedness: The EMS Connection**

Jeffrey Rubin, PhD

11:15 – 11:45 **Role of the Laboratory in Public Health Preparedness**

Carol Glaser, DVM, MPVM, MD

11:45 – 12:30 **Closing Remarks**

VADM Richard H. Carmona, MD, MPH, FACS

# The Science and Strategy of **BIO**preparedness

Critical Agent Update  
and Emerging Disease Threats

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**September 22 and 23, 2006**  
**Marriott Houston Medical Center, Houston, Texas**

## Intended Audience

This activity was developed for physicians, nurses, nurse practitioners, pharmacists, and other health care providers interested in preparing for biological threats.

## Statement of Need

Are you concerned about the potential for harm from biological sources, either through bioterrorism or through natural causes? Are you uncertain of your knowledge and ability to provide needed care in that situation? This activity will employ an expert faculty to explore the current state of knowledge about potential biological threats, potential preventative measures, treatments, and additional threats we may encounter in the future. From a scientific and clinical perspective, this meeting will provide cutting edge information to enhance your knowledge in the field of biopreparedness.

## Learning Objectives

Upon completion of this activity, participants should be better able to:

- Define the intricacies of current biological threats
- Employ diagnostic and treatment mechanisms to counter these threats
- Identify potential future biological threats to the general population

## Accreditation and Certification

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship of the Annenberg Center for Health Sciences at Eisenhower and The University of Texas Health Science Center at Houston School of Public Health. The Annenberg Center is accredited by the ACCME to provide continuing medical education for physicians.

The Annenberg Center designates this educational activity for a maximum of 12 *AMA PRA Category 1 Credits™*. Physicians should only claim credit commensurate with the extent of their participation in the activity.

The Annenberg Center for Health Sciences at Eisenhower is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. This program has been developed according to the ACPE Criteria for Quality and is assigned ACPE Universal Program #797-999-06-007-L04. This program is designated for up to 12 contact hours (1.2 CEUs) of continuing pharmacy education credit.



The Annenberg Center for Health Sciences is approved as a provider of nurse practitioner continuing education by the American Academy of Nurse Practitioners. Provider #040207. The Annenberg Center approves this program for 14.4 contact hours of continuing education.

Annenberg Center for Health Sciences at Eisenhower, Institute for Nursing Continuing Education is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation. This activity is approved for 12 hours of credit.

Statements of Credit will be provided by mail following activity participation, and upon completion and return of the evaluation form to the Annenberg Center for Health Sciences at Eisenhower (#4462), 39000 Bob Hope Drive, Rancho Mirage, CA 92270 or by FAX to 760-773-4550. Please allow 4-6 weeks for the delivery of your statement.

## Disclosure

It is the policy of the Annenberg Center to ensure fair balance, independence, objectivity, and scientific rigor in all programming. All faculty participating in sponsored programs are expected to identify and reference off-label product use and disclose any significant relationship with those supporting the activity or any others whose products or services are discussed.

In accordance with the Accreditation Council for Continuing Medical Education Standards, parallel documents from other accrediting bodies, and Annenberg Center policy, the following disclosures have been made:

**Ruth Berkelman, MD**

*Consultant*

Pathogen Control Associates Inc.

**Edward Eitzen, MD, MPH**

*Employee  
Consultant*

Martin, Blanck & Associates  
Alion Inc., NAI/NDJ, SAIC, SPARTA Inc., SRS International, STG International Inc., WGI

**John Grabenstein, RPh, PhD**

*Employee*

Merck & Co. Inc.

**J. Michael Lane, MD**

*Consultant*

Centers for Disease Control, National Institute of Allergy and Infectious Diseases,  
Acambis, DynPort Vaccine Company, World Health Organization

**Stanley M. Lemon, MD**

*Research Support  
Consultant*

Johnson & Johnson  
Abbott Laboratories, Novartis Pharmaceuticals, Pharmasset Inc., Sirna Therapeutics

The following faculty have no significant relationship to disclose:

**Ronald Blanck, DO**

**Philip Brachman, MD**

**Louisa Chapman, MD, MSPH**

**Robert Couch, MD**

**LTC Zygmunt F. Dembek, PhD, MS, MPH**

**David R. Franz, DVM, PhD**

**Carol Glaser, DVM, MD**

**Robert Howard, PhD, E.MBS, MPH**

**Scott Lillibridge, MD**

**COL James W. Martin**

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**Fredrick A. Murphy, DVM, PhD**

**Lauran Neergaard**

**Clarence J. Peters, MD**

**Jeffrey Rubin, PhD, CEM**

**Jeremy Sobel, MD, MPH**

**Terrence M. Tumpey, PhD**

The following faculty for this activity have disclosed that there will be discussion about the use of products for non-FDA approved indications:

**John Grabenstein, RPh, PhD**

**Clarence J. Peters, MD**

The following faculty for this activity have disclosed that there will be no discussion about the use of products for non-FDA approved applications:

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The ideas and opinions presented in this educational activity are those of the faculty and do not necessarily reflect the views of the Annenberg Center and/or its agents. As in all educational activities, we encourage the practitioners to use their own judgment in treating and addressing the needs of each individual patient, taking into account that patient's unique clinical situation. The Annenberg Center disclaims all liability and cannot be held responsible for any problems that may arise from participating in this activity or following treatment recommendations presented.

The Science and  
Strategy of  
**BIO** *preparedness*  
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**September 22 & 23, 2006**  
**Marriott Houston Medical Center, Houston, Texas**

*Distinguished Faculty*

**Planning Committee**

**Scott R. Lillibridge, MD**

Program Chair  
The University of Texas  
Health Science Center at Houston  
Center for Biosecurity and  
Public Health Preparedness  
Houston, TX

**Louisa Chapman, MD, MSPH**

Centers for Disease Control  
and Prevention  
Atlanta, GA

**Robert Howard, PhD, EMBS, MPH**

Robert Howard & Associates  
Duluth, GA

**COL James W. Martin**

U.S. Army Medical Research  
Institute of Infectious Diseases  
Fort Derrick, MD

**C. J. Peters, MD**

University of Texas Medical Branch  
Galveston, TX

**Faculty**

**Ruth Berkelman, MD**

Rollins School of Public Health  
Emory University  
Atlanta, GA

**Ronald Blanck, DO**

Martin, Blanck and Associates  
Arlington, VA

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Emory University  
Atlanta, GA

**Robert B. Couch, MD**

Baylor College of Medicine  
Houston, TX

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MPH**

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Midwest Research Institute  
Frederick, MD

**Carol Glaser, DVM, MD**

California Department  
of Health Services  
Viral and Rickettsial Disease Laboratory  
Richmond, CA

**John Grabenstein, RPh, PhD**

Merck Vaccine Division  
West Point, PA

**J. Michael Lane, MD**

Consultant  
Centers for Disease Control  
and Prevention  
Professor Emeritus, Emory University  
Atlanta, GA

**Stanley M. Lemon, MD**

University of Texas Medical Branch  
Galveston, TX

**Kathy McManus**

Emmy Award Winning Producer  
New York, NY

**Frederick A. Murphy, DVM, PhD**

University of Texas Medical Branch  
Galveston, TX

**Lauran Neergaard**

Associated Press  
Washington, DC

**Jeffrey Rubin, PhD, CEM**

Tualatin Valley Fire and Rescue Service  
Aloha, OR

**Jeremy Sobel, MD, MPH**

Centers for Disease Control  
and Prevention  
Atlanta, GA

**Terrence M. Tumpey, PhD**

Centers for Disease Control  
and Prevention  
Atlanta, GA

# *Faculty Biographies*

## Planning Committee

**Scott R. Lillibridge, MD**, currently Professor of Epidemiology and Director, Center for Biosecurity and Public Health Preparedness at The University of Texas School of Public Health, previously served as Special Assistant for National Security and Emergency Management to the Secretary of the Department of Health and Human Services (HHS). In 2001, he assisted in developing a national bioterrorism program at HHS at a time when the nation was experiencing anthrax attacks. Additionally, he was the founding Director of the Bioterrorism Preparedness and Response Program at the Centers for Disease Control and Prevention (CDC). Dr. Lillibridge has worked in emergency response and preparedness roles throughout the world, most recently working with the UN Interagency Rapid Health Assessment Team led by the World Health Organization that responded to the Indian Ocean Tsunami.

In 2002, Dr. Lillibridge was appointed by the President to the White House Emergency Services, Law Enforcement, and Public Health and Hospitals Senior Advisory Committee for the Office of Homeland Security. Dr. Lillibridge received his bachelor of science degree in environmental health at East Tennessee State University and his medical doctorate from the Uniformed Services University of the Health Sciences in Bethesda, Maryland.

**Captain Louisa E. Chapman, MD, MSPH**, currently serves as Associate Director for Medical Science of the Division of Viral Diseases in the National Center for Immunizations and Respiratory Disease, Coordinating Center for Infectious Diseases of the Centers for Disease Control and Prevention (CDC). Dr. Chapman has had an extensive career in the Public Health Service including such diverse assignments as Assistant Director for Life Science in the Office of Science & Technology Policy for the Executive Office of the President, the CDC Liaison to the Secretary's Emergency Response Team during Hurricanes Katrina and Rita, and Assistant to the Director for Biological Therapeutics of the CDC's National Center for Infectious Diseases (NCID). She has served as Chief of Epidemiology Activity for both the Retrovirology Branch and for Influenza, was a member of the 1993 Hantavirus Task Force, and more.

Dr. Chapman received her baccalaureate in biology and philosophy from Macalester College, her master of science in public health from the University of North Carolina at Chapel Hill (UNC-Chapel Hill) School of Public Health, and subsequently her M.D. from the UNC-Chapel Hill School of Medicine. Originally commissioned as an officer in 1988, Dr. Chapman was promoted to Captain/Director Surgeon in July 2004. A fellow of the Infectious Disease Society of America, Dr. Chapman is a member of several professional organizations, including founding member of the International Xenotransplantation Society. She has planned and participated in numerous working groups and conferences on the local, national, and international levels, and has published extensively in peer-reviewed journals, books, guidelines, and invited commentaries. Additionally, Dr. Chapman sits on the Editorial Boards of *Xenotransplantation* and *Viral Immunology* and is an ad hoc reviewer for several publications including *JAMA*.

**Robert J. Howard, PhD, MPH**, President and Chief Executive Officer of Robert J. Howard & Associates in Duluth, and his company specialize in education, communication, medical, and governmental relations. For 20 years, Dr. Howard served in the United States Navy in global deployments from Iceland, Puerto Rico, Sicily, Japan, the Middle East, and Europe. For 11 years he served as Director of Strategic Communications for the National Center for Infectious Diseases with the Centers for Disease Control and Prevention (CDC). Dr. Howard developed the Advanced Media Training Program for physicians at the CDC, and has a wide range of experience developing and delivering effective messages on topics ranging from emerging infections, bioterrorism, crisis communications and cancer. He serves as a Visiting Lecturer at the University of Georgia, Harvard School of Public Health and Medicine, the National Bioterrorism Training Center, and four National Public Health Training Institutes, and is a member of the National Advisory Council at the Annenberg Center for Health and Science Center.

Dr. Howard has been awarded a master's degree in public health and a PhD in public health administration. He also holds an executive master's degree in Business Administration. He has co-authored a chapter in the public health textbook, *Principals and Practices of Public Health Surveillance*, and has authored numerous book and magazine chapters and articles on subjects ranging from bioterrorism awareness to illegal immigration's impact on public health. In addition, Dr. Howard has taught at the World Health Organization and the Pan American Health Organization, and previously was a special consultant to the White House medical unit. He holds Commendation Medals from the Navy, Air Force, and Army, as well as the Meritorious Service Medal.

**Clarence James Peters, MD**, currently holds several appointments at the University of Texas Medical Branch (UTMB), including Director for Biodefense, Center for Biodefense and Emerging Infectious Diseases and the John Sealy Distinguished University Chair in Tropical and Emerging Virology. Previously, Dr. Peters was Chief of the Special Pathogens Branch, Division of Viral and Rickettsial Diseases at the National Center for Infectious Diseases of the Centers for Disease Control and Prevention (CDC) as well as Deputy Commander of the United States Army Medical Research Institute for Infectious Diseases and Chief of its Medical Division. Dr. Peters served in the military from 1968 to 2000, attaining the rank of Captain in the U.S. Public Health Service.

Dr. Peters received his bachelor's degree in chemistry *summa cum laude* from Rice University and his medical degree from Johns Hopkins University. He held a leadership role in developing concepts of pathogenesis and epidemiology of Rift Valley fever, developing ribavirin as a clinically useful antiviral drug, evaluation of inactivated Rift Valley fever vaccines, development of rapid diagnostic systems for viral hemorrhagic fevers, investigation of physiological aberrations in experimental arenaviral hemorrhagic fever. Dr. Peters also led the team that discovered hantavirus pulmonary syndrome and the causative virus in the Southwestern US and oversaw the public health response at the national level. He is the recipient of numerous honors, including the Surgeon General's Award and the Secretary's Award from the Department of Health and Human Services on three separate occasions. The author or co-author of more than 275 journal articles in virology and viral immunology as well as more than 70 book chapters, commentaries, and reviews, Dr. Peters is an ad hoc reviewer of seven different journals including the *New England Journal of Medicine*.

## Faculty

**Ruth Lyon Berkelman, MD**, following a 20-year tenure at the Centers for Disease Control and Prevention (CDC), established the Center for Public Health Preparedness and Research at Emory University, which is becoming widely known for its studies related to terrorism and healthcare utilization, its work on West Nile disease and other emerging infectious diseases, and for its educational opportunities. At the CDC, she became Deputy Director of the National Center for Infectious Diseases, and served as a Senior Advisor to the CDC Director and Assistant Surgeon General in the U.S. Public Health Service as well as Chief of the Surveillance Branch in the Division of HIV/AIDS and Division Director of Surveillance and Epidemiologic Studies.

After receiving her bachelor's degree from Princeton University, Dr. Berkelman earned her medical degree from Harvard Medical School. A Fellow of the Infectious Diseases Society of America, she is active in the American Society of Microbiology and is a member of the Institute of Medicine, serving on committees advising government agencies and others on issues related to biologic threats, both naturally occurring and terrorist-related. Dr. Berkelman has served on numerous advisory boards and scientific committees, both national and international, including the Committee on Biodefense Analysis and Countermeasures of the National Research Council, and has authored or co-authored numerous articles in peer-reviewed journals and books or book chapters. She is a member of the editorial board of the *Journal of Public Health Policy* and a scientific reviewer of nine additional journals including *JAMA*.

**Ronald R. Blanck, DO**, recently retired as the President of University of North Texas (UNT) Health Science Center at Fort Worth, Ronald R. Blanck, DO, is a Partner and Vice Chairman of the Board of Martin, Blanck & Associates, which offers health care consulting for the private sector and the government. Dr. Blanck joined UNT Health Science Center in 2000, and as president, he oversaw a growing academic health center that includes the Texas College of Osteopathic Medicine, Graduate School of Biomedical Sciences, School of Public Health and School of Health Professions. Prior to his tenure at UNT, Dr. Blanck served 32 years in the military, retiring with the rank of



Lieutenant General as the Surgeon General of the U.S. Army and Commander of the U.S. Army Medical Command. During his distinguished military career, Dr. Blanck also served as commander of Walter Reed Medical Center North Atlantic Region Medical Command and director of professional services and chief of Medical Corps Affairs for the U.S. Army Surgeon General. His academic credentials include teaching positions at Georgetown University, George Washington University, Howard University School of Medicine, The Uniformed Services University, the University of Texas Health Science Center at San Antonio and the UNT Health Science Center.

A graduate of Juniata College, Dr. Blanck received his medical degree from the Philadelphia College of Osteopathic Medicine, and was chief resident in Internal Medicine at Walter Reed Army Hospital in 1972. He has received numerous military and civilian honors, including receiving the highest honor presented by the American Medical Association to government officials, the Dr. Nathan Davis Award. A past Governor of the American College of Physicians/American Society of Internal Medicine, Dr. Blanck was named a Master by the specialists' society. He was elected to the National Board of Medical Examiners and also joined the boards of the Carrington Laboratories Inc, Mitretek Systems, Inc., DefenseWeb, Potomac Institute for Policy Studies and The Annapolis Center for Science-Based Public Policy. Dr. Blanck continues to be consulted as an advisor on bioterrorism issues and an expert in preparing the medical community to respond to mass casualty incidents or those involving weapons of mass destruction.

**Philip S. Brachman, MD**, who received his medical degree from the University of Wisconsin Medical School, has had a distinguished career in the public health and education sectors. Currently a Professor in the Rollins School of Public Health at Emory University, Dr. Brachman has been affiliated with Emory University since 1986. Prior to that, he was Director of the Global EIS Field Epidemiology Training Program for the Centers for Disease Control and Prevention (CDC) as well as Director of the CDC Bureau of Epidemiology and Chief of the Bacterial Disease Section of the National Communicable Disease Center, forerunner to the CDC. Dr. Brachman served in the U.S. Navy from 1945-46.

A Past President of the American Epidemiological Society and a Fellow of the American Public Health Association, Dr. Brachman is an Associate Editor of *International Journal of Epidemiology* and was previously an Associate Editor of *American Journal of Epidemiology* as well as a Reviewer for *Annals of Epidemiology* and *American Journal of Public Health*. He is the author of 64 peer-reviewed journal articles and 15 book chapters and the co-editor of four books.

**Robert B. Couch, MD**, is a distinguished service professor, Director of the Center for Infection and Immunity Research, and Professor of Medicine and Molecular Virology and Microbiology at Baylor College of Medicine. He is also Director of the Viral Respiratory Pathogens Research Unit, which is supported by the National Institutes of Health. He is former Chairman of the Department of Microbiology and Immunology and Director of the Influenza Research Center at Baylor. Before being appointed chairman of Microbiology and Immunology in 1989, Dr. Couch served as Chief of the Infectious Diseases Section of the Department of Medicine. Dr. Couch's research has focused on acute respiratory diseases, particularly influenza and rhinoviruses, and on vaccine development.

Dr. Couch received both his undergraduate and medical degrees from Vanderbilt University in Nashville, Tennessee. After gaining specialty training in internal medicine at Vanderbilt, he joined the staff of the Laboratory of Clinical Investigation at the National Institutes of Allergy and Infectious Diseases in Bethesda, Maryland. He was head of the Clinical Virology Section in that laboratory when he was recruited to Baylor in 1966 as Associate Professor of Microbiology and Immunology and Medicine. He is a Fellow of the American Association for the Advancement of Science, the American College of Physicians, and the Infectious Diseases Society of America. Dr. Couch has written more than 170 journal articles and 80 book chapters or reviews, and served as an associate or section editor as well as a member of the editorial board of numerous publications, including the *Journal of Immunology* and *Journal of Infectious Diseases*. Currently a consultant to the Food and Drug Administration's Advisory Panel for Vaccines and Related Biologicals, Dr. Couch has also served on the NIAID/NIH Task Force on Bioterrorism. He is a former chairman of the NIAID Board of Scientific Counselors, a former member of the National Vaccine Advisory Committee, and formerly served on the Advisory Council of the NIAID.

**Zygmunt F. Dembek, PhD, MPH**, affiliated with the Connecticut Department of Public Health for more than 20 years, currently serves the state as an Epidemiologist and also has served as the Bioterrorism Coordinator and the department Emergency Response Coordinator for all public health emergencies. Currently on military leave from the department, Dr. Dembek, a mobilized lieutenant colonel in the Medical Service Corps of the U.S. Army Reserve, is serving at the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID). He also holds faculty appointments as Assistant Clinical Professor, School of Medicine of the University of Connecticut Health Center, and Adjunct Assistant Professor, Uniformed Services University of the Health Sciences. Additionally, Dr. Dembek was a member of the Connecticut State Emergency Response Commission from 2000-2005, the Connecticut Persian Gulf War Commission from 1997-2003, and has received numerous military and civilian commendations.

After receiving his bachelor degree in biology from Eastern Connecticut State University, Dr. Dembek earned his master of science degree in biomedical science from Hood College, his PhD in nutritional biochemistry and a master's degree in public health from the University of Connecticut. He also attended the U.S. Army Command and General Staff College in Fort Leavenworth, KS. Dr. Dembek serves as a peer reviewer for various scholarly journals. He has published 65 journal articles and book chapters, and produced, scripted, and appeared in biodefense video presentations for the U.S. Army Medical Command, the Department of Veterans Affairs, and the Centers for Disease Control and Prevention.

**Edward Eitzen, MD, MPH**, after 28 years of active duty in the U.S. Army Medical Corps, joined Martin, Blanck & Associates as Senior Partner for Biodefense and Public Health Programs in February 2004. Dr. Eitzen maintains clinical appointments in Emergency Medicine and Preventive Medicine at Walter Reed Army Medical Center, and holds a dual academic appointment as Adjunct Associate Clinical Professor of Pediatrics and Emergency Medicine at the Uniformed Services University of Health Sciences. For the past 15 years, he has been a leader in devising military and civilian biological defense strategies. In June of 2002, he was a by-name request to the Army Surgeon General for service in the Department of Health and Human Services (HHS) on civilian bioterrorism preparedness and policy issues. He also has served as Deputy Director of the Office of Research and Development Coordination, Office of Public Health Emergency Preparedness, HHS, and previously commanded the U.S. Army Medical Research Institute of Infectious Diseases, the nation's premier biological defense laboratory, where he led the Department of Defense laboratory response to the 2001 anthrax attacks. Dr. Eitzen is one of the foremost international experts in biological threat countermeasures and public health strategies in response to infectious disease threats.

Dr. Eitzen graduated magna cum laude from Auburn University with a bachelor degree in chemistry and he received his medical degree with honors from the University of Alabama School of Medicine in Birmingham as well as a master's in public health in Public Health and Preventive Medicine at the University of Washington and Madigan Army Medical Center. A fellow of both the American Academy of Pediatrics and the American College of Emergency Physicians, Dr. Eitzen is a member of the editorial board of the *American Journal of Tropical Medicine & Hygiene* and a reviewer for *Annals of Emergency Medicine*; he is the author of 64 articles and book chapters, with his writing focusing extensively on the medical effects of biological agents and the medical management of biological casualties.

**David R. Franz, DVM, PhD**, as the Vice President and Chief Biological Scientist, Midwest Research Institute (MRI), is MRI's senior advisor for biological defense and international activities. In addition, Dr. Franz is the Director, National Agricultural Biosecurity Center, and Adjunct Professor, Department of Diagnostic Medicine and Pathobiology, at Kansas State University and has a current appointment as Adjunct Professor, Department of Emergency Medicine, and Deputy Director, Center for Emergency Care and Disaster Preparedness, at the University of Alabama at Birmingham School of Medicine. Dr. Franz served in the U.S. Army Medical Research and Materiel Command for 23 of 27 years on active duty and retired as Colonel. He was Commander of the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) and Deputy Commander of the Medical Research and Materiel Command. Additionally, Dr. Franz was the Chief Inspector on three United Nations Special Commission biological warfare inspection missions to Iraq and served as technical advisor on long-term monitoring. Dr. Franz serves as a Senior Fellow in the Combating Terrorism Center of the U.S. Military Academy at West Point.

After receiving his bachelor's degree from Kansas State University, Dr. Franz earned his DVM from the university's College of Veterinary Medicine and then obtained a PhD in physiology from Baylor College of Medicine. Current committee appointments include the Defense Intelligence Agency Red Team Bio-Chem 2020, the Defense Threat Reduction Agency's Threat Reduction Advisory Committee, chair of the National Academy of Sciences' (NAS) Committee for Research with Russian Biological Institutes, the NAS Committee on International Security and Arms Control, the Department of Health and Human Services' National Science Advisory Board for Biosecurity, and the recently decommissioned Department of Homeland Security Science and Technology Advisory Committee. The author or co-author of more than 16 book chapters and 45 journal articles, Dr. Franz was Technical Editor for the *Textbook of Military Medicine on Medical Aspects of Chemical and Biological Warfare*.

**Carol Glaser, DVM, MD**, is currently Chief of the Viral and Rickettsial Disease Laboratory, Division of Communicable Disease Control in the California Department of Health Services. She initially obtained a dual degree of Doctor of Veterinary Medicine and Master of Preventive Veterinary medicine and then attended medical school. Later she became board-certified in Pediatrics and Pediatric Infectious Diseases.

In addition to her role as Chief of the VRDL, Dr. Glaser serves as an Assistant Adjunct Professor in the Pediatric Infectious Disease Division, University of California, San Francisco. She is a member of the Infectious Disease Society of America and of the Society of Pediatric Research. As the principal Investigator for the California Encephalitis Project, Dr. Glaser has a strong interest to the field of encephalitis. As the Principal Investigator for the CEP, she has a strong interest and understanding of encephalitis. She has worked closely with the local public health laboratory directors, health officers, communicable disease control officers and physicians throughout the State for seven years on encephalitis cases. She has also worked closely with health officers and public health laboratories to develop the West Nile Virus Surveillance and Epidemiologic Project for monitoring human WNV disease in California. She is also helping to develop the Respiratory Laboratory Network in California.

**John Grabenstein, RPh, PhD**, is Senior Director for Scientific Affairs for Merck Vaccine Division. In this role, he provides scientific and medical guidance for Merck's global vaccine enterprise. Previously, as a Colonel in the United States Army, he served as Director of the Military Vaccine Agency in the Army Surgeon General's Office. He was scientific director of the Department of Defense's immunization programs for more than nine million troops, retirees, and their family members dispersed on four continents and dozens of ships at sea. Among other posts, Dr. Grabenstein was Chief of the U.S. Army Allergen Extract Laboratory at Walter Reed Army Medical Center. Dr. Grabenstein received the 1998 Pinnacle Award, the 2004 Andrew Craigie Award, and the 2006 Francke Leadership Mentor Award.

Dr. Grabenstein received his bachelor of science degree in pharmacy from Duquesne University via Army ROTC, a master's degree in education from Boston University, a second master's degree in pharmacy administration from the University of North Carolina (UNC) School of Pharmacy, and then his doctorate in pharmaco-epidemiology at the UNC Schools of Public Health & Pharmacy. He is a fellow of the Royal Society for Promotion of Health, the American Pharmacists Association, and the American Society of Health-system Pharmacists; he was the youngest pharmacist ever named to the latter honor. Dr. Grabenstein serves on the Council of Experts of the United States Pharmacopeia. He is the principal author of "Pharmacy-Based Immunization Delivery," a CDC-recognized 20-hour curriculum coordinated by the American Pharmacists Association (APhA). Currently he also serves on the editorial boards of the *APhA DrugInfo Line* newsletter; *Pharmacist's Letter*, *Prescriber's Letter*; and *Annals of Pharmacotherapy*, where he chairs the immunology panel. A pharmacist with 26 years of experience, Dr. Grabenstein has published more than 300 articles and eight books, primarily on topics of immunization, public health, and leadership. These include a series of 91 articles in *Hospital Pharmacy* and another series of 23 pieces in *Journal of the American Pharmaceutical Association*.

**John Michael Lane, MD, MPH**, is currently Professor Emeritus at Emory University School of Medicine, where he has served on the faculty since 1988, with a two-year consultancy for the World Health Organization (WHO) at the National Centre for Epidemiology and Population Health in Canberra, Australia, from 1991-93. In addition to consulting for WHO, Dr. Lane also serves as a consultant to the Centers for Disease Control and Prevention (CDC), the National Institutes of Health, Acambis, Chimerix, Dynport, Bavarian Nordic, and the U.S. Army on smallpox and

vaccinia. Prior to joining the Emory faculty, he was Director of the Center for Prevention Services for the CDC, where he had worked mostly on various aspects of smallpox and vaccinia since the mid-1960s. In addition to his duties at Emory, Dr. Lane has organized and taught courses for the CDC, WHO, and University of California as well as lectured at Harvard University and other universities and made numerous presentations to the American Public Health Association, the American Nutrition Association, the Infectious Disease Society, The American Medical Association, the American Academy of Pediatrics, and various state medical associations.

After graduating with his baccalaureate magna cum laude from Yale University, Dr. Lane received his M.D. from Harvard Medical School. He is a Fellow of the Epidemiology Section of the American Public Health Association, a consultant to the American Academy of Pediatrics' Committee on Infectious Diseases, and a member of the WHO Expert Committee on Orthopoxviruses. Dr. Lane has authored or co-authored nine book chapters and 100 journal articles dating back to 1967, many of which deal with smallpox and vaccinia.

**Stanley M. Lemon, MD**, is currently the John Sealy Distinguished University Chair and Director of the Galveston National Laboratory and Institute for Human Infections and Immunity at the University of Texas Medical Branch (UTMB) at Galveston. He joined the faculty of UTMB in 1997, serving first as Chair of the Department of Microbiology and Immunology, then as dean of the School of Medicine. Previously, Dr. Lemon served with the U.S. Army Medical Research and Development Command, followed by a 14-year period on the faculty of the University of North Carolina School of Medicine. With a focus on viral hepatitis, Dr. Lemon's research interests have been continuously funded by the National Institutes of Health since 1986. He served previously as chair of the Anti-Infective Drugs Advisory Committee and of the Vaccines and Related Biologics Advisory Committee, both of the U.S. Food and Drug Administration. He has also had extensive experience in industry, serving as Director for both BioWhittaker, Inc. the North Carolina Triangle Universities Licensing Consortium. Dr. Lemon presently serves as a member of the U.S. Delegation of the U.S.-Japan Cooperative Medical Sciences Program, and was recently appointed to the newly formed National Science Advisory Board on Biosecurity. He also chairs the Board of Scientific Councilors of the National Center for Infectious Diseases of the Centers for Disease Control and Prevention, and is Chair of the Forum on Microbial Threats of the Institute of Medicine.

Dr. Lemon received his undergraduate A.B. degree in biochemical sciences from Princeton University summa cum laude, and his M.D. with honor from the University of Rochester. A fellow of the Infectious Disease Society of America, Dr. Lemon was recently appointed to the editorial board of the *Journal of Biological Chemistry* and also serves in editorial capacities for the *Journal of Virology* and *Antiviral Research*. He has published extensively as the author of 162 peer-reviewed articles, 37 reviews and editorials, and 64 book chapters, and is the co-editor of eight books.

**Kathy McManus**, an award-winning television producer and writer, has more than 20 years experience overseeing productions for everything from broadcast news programs to reality shows. Currently a New York-based media consultant for television and non-profit clients specializing in media training and developing stories and shows for television, McManus has held positions with ABC News including Jerusalem Bureau Chief and Producer/Director/Writer for "20/20," "Prime Time," and "Turning Point," as well as worked for CBS News in various producer/director capacities for "CBS Evening News," "48 Hours," "West 57," and "Street Stories with Ed Bradley." In Liberia, West Africa, McManus was the media information officer for the United Nations emergency relief operation during the Liberian civil war, where she coordinated international press coverage of this humanitarian disaster, working extensively with child soldiers. She also has served as a Senior Media Strategist for Ben & Jerry's founder Ben Cohen, Senior Media Consultant for Fenton Communications where she specialized in framing issues and placing stories for non-profits, and, as Senior Producer for RDF Media, McManus oversaw all aspects of production for the ABC-TV reality show, "Wife Swap."

A graduate of Immaculate Heart College in Los Angeles with a bachelor's degree in English Literature, McManus has received numerous awards for journalistic excellence including three National Press Club Awards, Edward R. Murrow Award, GLAAD Award, Investigative Reporters and Editors Award, CINE Golden Eagle Award, National Headliner Award, Radio and Television News Directors Award, Ohio State Award, ACLU Clarence Darrow Foundation Award, the Peabody, the DuPont, and the Emmy. She holds dual United States and Irish citizenship.

**Frederick A. Murphy, DVM**, is Professor, Department of Pathology at the University of Texas Medical Branch, Galveston. He holds a BS and DVM from Cornell University and a PhD from the University of California, Davis. Formerly he was Dean and Distinguished Professor of Virology, School of Veterinary Medicine, and Distinguished Professor, School of Medicine, University of California, Davis. Previously, he served as Director of the Division of Viral and Rickettsial Diseases and Director of the National Center for Infectious Diseases, Centers for Disease Control and Prevention, Atlanta. He is a member of the Institute of Medicine of the National Academy of Sciences and is a member of the U.S. Department of Health and Human Services Secretary's Council on Public Health Preparedness. His honors include Doctor of Medicine and Surgery honoris causa, University of Turku, Turku, Finland, Doctor of Science honoris causa, University of Guelph, Ontario, Canada and the Presidential Rank Award of the U.S. Government. His professional interests include the pathology and epidemiology of viral diseases (rabies, arboviruses, viral hemorrhagic fevers, viral encephalitides), new and emerging infectious diseases, the threat posed by bioterrorism, and most recently zoonotic influenza.

**Lauran Neergaard** is the Washington-based medical writer for The Associated Press. She joined the AP in Atlanta in 1989 as a general news reporter, and has covered public health and medical issues since 1992. In addition, she is the author of a weekly column, HealthBeat.

Neergaard is a 1989 graduate of the University of Georgia, where she studied journalism and global policy/Russian. She was the 1997 recipient of the John E. Drewry Award for career achievement in journalism.

**Jeff Rubin, PhD**, has served since February 2001 as the Emergency Management Program Manager of Tualatin Valley Fire & Rescue, where he is responsible for emergency management of Oregon's largest fire district as well as staff development and training, emergency operations planning, hospital preparedness, public education, and more. He also is a member of the State of Oregon's Health Preparedness Advisory Committee. Dr. Rubin has additional emergency management experience including developing disaster plans for various organizations; is a safety, health, and emergency preparedness consultant; and has participated in numerous antiterrorism initiatives and projects. Dr. Rubin also was Assistant Dean for Environmental Health & Safety at the College of Natural Sciences at the University of Texas at Austin. Previously, Dr. Rubin was in the fire service for 13 years and served with City of Austin (Texas) Emergency Medical Services as a field medic, 9-1-1 dispatcher, Hazmat Captain, and planner for mass casualties and other large incidents.

Dr. Rubin holds a bachelor's degree in geology and geophysics from Yale University and earned his master's and PhD degrees in geological sciences from the University of Texas at Austin. He was a participant in the NATO Advanced Research Workshop on Mass Casualty Events held in Haifa, Israel, in April 2005, and he served on the review group for the recent Hospital Incident Command System update as well as participating as a faculty member at several national and international conferences. He has published extensively in various geological, safety, and emergency management journals.

**Terrence M. Tumpey, PhD**, earned his bachelor of arts degree in biology from the University of Minnesota in Duluth and his PhD in immunology from the University of South Alabama School of Medicine in Mobile. While pursuing his doctorate, Dr. Tumpey lectured at the university and was awarded the Lions Eye Research Institute/USA Grant-in-Aid Award in both 1994 and 1995. He was a post-doctoral fellow at the Centers for Disease Control and Prevention (CDC) where he twice received the Nakano Award for Outstanding Research Paper. Later serving the U.S. Department of Agriculture (USDA) as a microbiologist in the Southeast Poultry Research Laboratory in Athens, Georgia, Dr. Tumpey has been with the CDC Influenza Branch since 2003 and is currently a Senior Microbiologist.

This year, he was honored with the Lancet Award for the top scientific paper of 2005 presented by Lancet, and also received the 2006 Shepard Award from the CDC for Outstanding Research Paper. His research on pathogenesis and immunity during the last 20 years is documented in 51 total peer-reviewed publications, and has been the basis for over 40 presentations, 21 of which were invited. Dr. Tumpey has served as a reviewer for the *Journal of Virology* since 2001 and is currently an ad hoc reviewer for the journals *Science* and the *Proceedings of the National Academy of Sciences*.

**Vice Admiral Richard H. Carmona, MD, MPH, FACS**, was sworn in as the 17th Surgeon General of the United States Public Health Service on August 5, 2002.

Born and raised in New York City, Dr. Carmona dropped out of high school and enlisted in the U.S. Army in 1967. While enlisted he received his Army General Equivalency Diploma, joined the Army's Special Forces, ultimately becoming a combat-decorated Vietnam veteran, and began his career in medicine.

After leaving active duty, Dr. Carmona attended Bronx Community College, of the City University of New York, where he earned his associate of arts degree. He later attended and graduated from the University of California, San Francisco, with a bachelor of science degree (1977) and medical degree (1979). At the University of California Medical School, Dr. Carmona was awarded the prestigious gold headed cane as the top graduate. He has also earned a masters of public health from The University of Arizona (1998).

Dr. Carmona has worked in various positions in the medical field including paramedic, registered nurse and physician. Dr. Carmona completed a surgical residency at the University of California, San Francisco, and a National Institutes of Health-sponsored fellowship in trauma, burns and critical care. Dr. Carmona is a Fellow of the American College of Surgeons, and is also certified in correctional health care and in quality assurance.

Prior to being named Surgeon General, Dr. Carmona was the chairman of the State of Arizona Southern Regional Emergency Medical System, a professor of surgery, public health and family and community medicine at The University of Arizona, and the Pima County Sheriff's Department surgeon and deputy sheriff.

Dr. Carmona has also held progressive positions of responsibility as chief medical officer, hospital chief executive officer, public health officer, and finally chief executive officer of the Pima county health care system. He has also served as a medical director of police and fire departments and is a fully-qualified peace officer with expertise in special operations and emergency preparedness, including weapons of mass destruction.

Dr. Carmona has published extensively and received numerous awards, decorations, and local and national recognition for his achievements. A strong supporter of community service, he has served on community and national boards and provided leadership to many diverse organizations.

**Final Live Program 1 Brochure (attached)**

## Critical Agent Update and Emerging Disease Threats

Program and faculty are subject to change

### SATURDAY, SEPTEMBER 23

7:00 – 7:45

**Breakfast**

**From Biological Threat to Biosecurity:  
Implications for Preparedness**

7:45 – 8:45

**Hot Zones to War Zones: Critical  
Pathogens/Implications for Preparedness**

Edward M. Eitzen, Jr., MD  
Ronald Blanck, DO

**Detection and Response in  
Keeping Us Safe**

8:45 – 9:15

**Strategies for Protecting our Population Through  
Early Detection**

Ruth Berkelman, MD

9:15 – 9:45

**Surge Capacity in Infectious Outbreak  
Preparedness**

Jeffrey Rubin, PhD

9:45 – 10:00

**Break**

**Laboratory as the Lynchpin to Preparedness**

10:00 – 10:30

**New Pathogen Discovery/Detection**

Sharef R. Zaki, PhD

10:30 – 11:00

**Role of the Laboratory in Public Health Preparedness**

Carol Glaser, DVM, MPVM, MD, CA-DHS (Invited)

11:00 – 12:00

**The Media and Bioterrorism**

Robert Howard, PhD, EMBS, MPH, Moderator  
Lauren Neergaard, Associated Press  
Kathy McManus, Emmy Award Winning Producer

12:00

**Closing Remarks**

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The Science and  
Strategy of  
**BIOpreparedness**  
Critical Agent Update  
and Emerging Disease Threats  
September 22-23, 2006  
Houston, Texas  
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## The Science and Strategy of **BIOpreparedness**

Critical Agent Update  
and Emerging Disease Threats



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## The Science and Strategy of **BIOpreparedness** Symposium Agenda

### FRIDAY, SEPTEMBER 22

7:00 – 8:00

**Breakfast**

8:00 – 8:15

**Welcome, Introduction, Setting the Stage**  
Scott Lillibridge, MD

8:15 – 9:00

**Interaction Between Emerging Infections and  
Bioterrorism: What Are the Risks and Threats?**  
C.J. Peters, MD

9:00 – 10:15

**Avian Influenza**

Ruth Berkelman, MD, Moderator  
Louisa Chapman, MD  
Robert B. Couch, MD  
Terrence M. Tumpey, PhD

10:15 – 10:45

**Break**

10:45 – 12:00

**Anthrax**

Philip Brachman, MD, MSPH  
John Grabenstein, RPh, PhD

12:00 – 1:00

**Lunch**

1:00 – 1:45

**International Science and Biosecurity**

David R. Franz, DVM, PhD

1:45 – 2:45

**Smallpox and Other Orthopoxes**

J. Michael Lane, MD

2:45 – 3:15

**Break**

3:15 – 4:15

**Toxins**

Jeremy Sobel, MD, MPH  
LTC Zygmunt F. Dembek, PhD, MS, MPH

4:15 – 5:00

**Emerging Disease and Zoonoses**

Frederick A. Murphy, DVM, PhD

5:00 – 5:45

**Globalization, Biosecurity and the  
Future of Life Sciences**

Stanley M. Lemon, MD

**Closing Remarks**

7:00 – 9:00

**Dinner**

Keynote Speaker



# The Science and Strategy of **BIO**preparedness

Critical Agent Update  
and Emerging Disease Threats

September 22-23, 2006  
Marriott Houston Medical Center  
Houston, Texas

## Intended Audience

This activity was developed for physicians, nurses, nurse practitioners, pharmacists, and other health care providers interested in preparing for biological threats.

## Statement of Need

Are you concerned about the potential for harm from biological sources, either through bioterrorism or through natural causes? Are you uncertain of your knowledge and ability to provide needed care in that situation? This activity will employ an expert faculty to explore the current state of knowledge about potential biological threats, potential preventative measures, treatments, and additional threats we may encounter in the future. From a scientific and clinical perspective, this meeting will provide cutting edge information to enhance your knowledge in the field of biopreparedness.

## Learning Objectives

Upon completion of this activity, participants should be better able to:

- Define the intricacies of current biological threats
- Employ diagnostic and treatment mechanisms to counter these threats
- Identify potential future biological threats to the general population

## Conference Hotel


Marriott Houston Medical Center  
6580 Fannin Street, Houston, Texas 77030  
713-796-0080 or 800-228-9290 for reservations

When making your reservations, mention the Annenberg Center to receive the conference rate, which is **\$139.00**. Make your reservations early as the hotel cut-off date is Thursday, August 31, 2006. After that date, rooms will be available only on a space-available basis.

## Accreditation and Certification

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship of the Annenberg Center for Health Sciences at Eisenhower and The University of Texas Health Science Center at Houston School of Public Health. The Annenberg Center is accredited by the ACCME to provide continuing medical education for physicians.

The Annenberg Center designates this educational activity for a maximum of 12 *AMA PRA Category 1 Credits™*. Physicians should only claim credit commensurate with the extent of their participation in the activity.

The Annenberg Center for Health Sciences at Eisenhower is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. This program has been developed according to the ACPE Criteria for Quality and is assigned ACPE Universal Program #797-999-06-007-L04. This program is designated for up to 12 contact hours (1.2 CEUs) of continuing pharmacy education credit. 

Annenberg Center for Health Sciences is approved as a provider of nurse practitioner continuing education by the American Academy of Nurse Practitioners. Provider #040207. The Annenberg Center approves this program for 14.4 contact hours of continuing education.

Annenberg Center for Health Sciences at Eisenhower, Institute for Nursing Continuing Education is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation.

This activity is approved for 12 hours of credit.

Statements of Credit will be provided by mail following activity participation, and upon completion and return of the evaluation form to the Annenberg Center for Health Sciences at Eisenhower (#4462), 39000 Bob Hope Drive, Rancho Mirage, CA 92270 or by FAX to 760-773-4550. Please allow 4-6 weeks for the delivery of your statement.

## Disclosure

It is the policy of the Annenberg Center to ensure fair balance, independence, objectivity, and scientific rigor in all programming. All faculty participating in sponsored programs are expected to identify and reference off-label product use and disclose any significant relationship with those supporting the activity or any others whose products or services are discussed. Full disclosure will be made in the syllabus.

If you need reasonable, special accommodations or have questions about access to any of our activities, please contact Brenda Patterson, by phone at 800-321-3690 or by fax at 760-773-4550. All requests must be received at least 14 days in advance of the intended activity start date.

## Program Updates

For up-to-date information regarding the program agenda or faculty, please visit our Web site: [www.5StarMedEd.org/bio](http://www.5StarMedEd.org/bio)

## Planning Committee

**Scott R. Lillibridge, MD**  
Program Chair  
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Health Science Center at Houston  
Center for Biosecurity and  
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**COL James W. Martin**  
U.S. Army Medical Research  
Institute of Infectious Diseases  
Fort Derrick, MD

**C. J. Peters, MD**  
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## Faculty

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Emory University  
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**LTC Zygmunt F. Dembek, PhD, MS, MPH**  
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**Stanley M. Lemon, MD**  
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Galveston, TX

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and Prevention  
Atlanta, GA

# The Science and Strategy of **BIO**preparedness

Critical Agent Update  
and Emerging Disease Threats

**REGISTER TODAY! SPACE IS LIMITED!**  
Friday and Saturday, September 22-23, 2006  
Marriott Houston Medical Center, Houston, TX

PLEASE PRINT CLEARLY.

Name \_\_\_\_\_

Degree \_\_\_\_\_

Date of Birth (used for tracking purposes only) \_\_\_\_\_

Title \_\_\_\_\_

Additional Name Badge Information:

Institution \_\_\_\_\_

City \_\_\_\_\_

Address (Home Work) \_\_\_\_\_

\_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Daytime Phone ( ) \_\_\_\_\_

Fax ( ) \_\_\_\_\_

E-mail Address \_\_\_\_\_

Yes, I will attend the Friday evening dinner (included in registration fee)

Special Needs (dietary, hearing/sight impaired, etc.)

\_\_\_\_\_

REGISTRATION FEE: \$195

Method of Payment:

Check (U.S. Funds)  MasterCard  Visa  AMEX  Discover

Account Number \_\_\_\_\_ Exp. Date \_\_\_\_\_

Card Holder's Name \_\_\_\_\_

**Credit card registrations may be faxed to 760-773-4550.**

**Make check payable and send with registration to:**  
Annenberg Center for Health Sciences, Attn: Biopreparedness,  
39000 Bob Hope Drive, Rancho Mirage, CA 92270

*You will receive a confirmation letter of your registration.*

For more information, contact Brenda Patterson toll-free between  
8 a.m. and 5 p.m. Pacific time at 800-321-3690 or 760-773-4500.

## **Learning objectives for core clinical topics**

### **Smallpox objectives:**

1. Attendees should be able to list the 6 major elements of the surveillance/containment method of containing smallpox outbreaks.
2. Attendees should be able to describe the most likely method that terrorists would use to initiate a smallpox outbreak.
3. Attendees should be able to list the 3 roadblocks that make reliance on third generation smallpox vaccines to control smallpox outbreaks difficult.

### **Influenza objectives:**

1. Attendees should be better able to describe the mechanism of action/infection for varying forms of influenza
2. Attendees should be better able to describe the efficacy of various prevention and treatment options in influenza
3. Attendees should be better able to assess the possibility of pandemics from avian influenza and other influenza strains

### **Anthrax objectives:**

1. Attendees should be better able to identify symptoms of anthrax toxicity in early and later stages
2. Attendees should be better able to assess the efficacy of prophylaxis against anthrax toxicity.
3. Attendees will be better able to discuss efficacy and safety issues of pre-exposure vaccines.

### **Toxins objectives:**

1. Attendees will be better able to rapidly diagnose botulinum toxin exposure
2. Attendees will be better able to manage botulinum toxicity.
3. Attendees will be better able to manage ricin toxicity.