



*September 11:  
USU Answers the Call  
Letter From Afghanistan  
Combatting Bioterrorism*



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

The University's mission—learning to care for those in harm's way—took on new meaning on September 11, 2001. Who would have thought that a broker on Wall Street would fall victim to a building collapse? Or that servicemen and women would be under attack at the Pentagon? Or that biological weapon threats would disrupt mail delivery and attempt to erode the freedom we enjoy in this society?

I am proud of the way the USU community was able to respond—not react—to these unprecedented tragedies. Our unique training and focus, always an integral part of our military readiness, proved invaluable in the wake of the terrorist attacks on September 11 and the subsequent biological weapon threats. We have been called upon to provide resources, knowledge and experience to help the nation respond, regroup and prepare for the future.

Throughout this magazine, you will read about how USU, through education, consulting, and operational programs, has worked for years to prepare for such emergencies. You will also see how USU students, faculty and alumni were ready to help the nation respond because of the expertise they acquired at the University.

We at USU join the nation in mourning the loss of life that resulted from these treacherous acts of terrorism. I am proud of how we provide leadership in this new era to help keep our military personnel—and our civilians—safe from harm.

Welcome to the first issue of ***USU Medicine***, the new magazine of the Uniformed Services University of the Health Sciences.

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Established by Congress in 1972 and operated by the Department of Defense, the Uniformed Services University of the Health Sciences (USU) is the only federal medical school and graduate school of nursing. Its mission includes teaching, training, and research. USU graduates serve worldwide.

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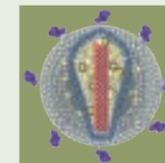
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## President Zimble Establishes Endowment for Operational Medicine

Late last year, University President James A. Zimble launched an endowment for new initiatives in military operational medicine at USU. The events of Sept. 11 followed, reinforcing his vision to ensure funding that would begin and perpetuate such important programs. Seeded with \$10,000 from the Berry Prize awarded to Zimble last year, the endowment will soon grow with additional funds from Baxter Healthcare.

The military operational medicine endowment will support research and education activities to enhance the practice of "good medicine in bad places." USU is already a national resource and hub of expertise in operational medicine. Plans call for new educational programs to transfer this unique knowledge throughout military medicine and to civilian health care providers.

In fact, the House of Representatives recently recognized USU as the national authority to help DoD and Veterans Affairs "develop and disseminate education and training programs on the medical responses to terrorist activities."

## Gifts like these may be made to the University . . . . .

This endowment, like others at USU, is part of the University's plans to increase critically needed funding for its teaching and research priorities. If you would like to find out more about ways in which you can help USU develop and broaden its permanent base of private funding, please contact Helaine Ahern, Assistant V.P. for Development at 301-295-3094 or hahern@usuhs.mil.

## New Leader Selected For School of Medicine



After an extensive national search, Capt. Larry W. Laughlin, MC, USN, was chosen to be the fourth dean of the F. Edward Hébert School of Medicine at USU. He will succeed Val G. Hemming, M.D., at the school's upcoming graduation in May 2002.

Dr. Laughlin joined the School of Medicine a decade ago and has been chair of the University's Department of Preventive Medicine and Biometrics since 1998. He also holds the Sanford Chair in Tropical Medicine, named in honor of the medical school's former dean, Jay P. Sanford.

After receiving his bachelor's degree from James Millikin University in central Illinois, Laughlin graduated magna cum laude from the St. Louis University School of Medicine. Following his residency and fellowship at Boston City Hospital, he began to focus his research in tropical infectious diseases and went on to obtain a Ph.D. from the School of Hygiene and Tropical Medicine at the University of London, England. He is board certified in Internal Medicine, Infectious Diseases and Preventive Medicine. Laughlin spent his first 17 years of active duty in the Navy

with the Research and Development Command at duty stations in Cairo, Egypt; London, England; Jakarta, Indonesia; and Manila, Philippines; culminating as Commanding Officer of the Naval Medical Research Institute, then in Bethesda, Maryland. During that time, he became an adjunct faculty member of USU and published more than 40 peer-reviewed

publications on 13 different tropical infectious diseases.

Since beginning his tenure at USU as the Director of Tropical Public Health in 1992, Laughlin has developed benchmark educational programs in tropical infectious diseases. He has also created a robust research program in the South American emerging infectious disease, Bartonellosis, receiving USU's only NIH training grant as well as multiple research grants from the DoD and NSF.

Laughlin's broad interest in advancing medical education and scholarship has brought him to lead a medical school where he feels he "has a special role to play in preparing young military physicians to practice medicine in harm's way."

President Zimble reaffirms this role and states that Laughlin is "the right person at the right time for our university and our country. His background in preventive medicine and infectious diseases, combined with his M.D. and Ph.D. degrees, make him especially qualified to take the helm of this nation's unique and vital school of medicine."

## New Interim Chair for Military and Emergency Medicine

Col. Clifford Cloonan, MC, USA, a 1983 USU graduate, returned to USU early last year to serve as vice chair of the Department of Military and Emergency Medicine. In September 2001, Cloonan was appointed interim chair, after long-time chair Craig Llewellyn, M.D., stepped down to serve as director of the department's Center for Disaster and Humanitarian Assistance Medicine (CDHAM).



Cloonan served in the department from 1990-93 as an assistant professor. He was also the course director for both the Combat Medical Skills course and the Introduction to Combat Casualty Care course. Cloonan also serves as the consultant to the Army Surgeon General for emergency medicine.

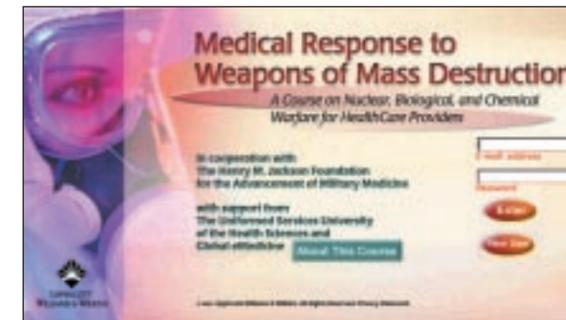
## USU Takes Training to the Web

USU's medical response training is going hi-tech. With support from the Henry M. Jackson Foundation, USU has teamed up with medical publisher Lippincott Williams & Wilkins to develop an online course and handheld learning tools for "Medical Response to Weapons of Mass Destruction." Software developer Global eMedicine is also working on the initiative.

The course training modules consist of 13 lectures and ten case simulations that will educate medical professionals about the most potentially threatening agents used in terrorist attacks. The cases allow users to diagnose and treat patients who show symptoms of various agents such as anthrax, smallpox, sarin and cyanide. The Web-based format of the course

provides for anywhere, any time access to the cases and lectures.

The online course is scheduled for release early this year and will be available for an annual license fee. CME credits will be offered. For more information about the program, contact Heidi Alexander at halexand@lww.com.



## Residency Program Earns Maximum Accreditation

The Uniformed Services Residency in Obstetrics and Gynecology was recently granted the maximum five-year accreditation by the Obstetrics and Gynecology Residency Review Committee of the Accreditation Council for Graduate Medical Education.

The program, directed by USU class of 1986 alumnus and department vice chair Lt. Col. Andrew Satin, is the first residency in obstetrics and gynecology

ever to move from provisional status as a newly integrated program directly to the maximum accreditation of five years. It is a fully integrated program under the institutional sponsorship of the National Capital Consortium based at the National Naval Medical Center and Walter Reed Army Medical Center. Furthermore, of the more than 250 obstetrics and gynecology residency programs in the U.S., only nine have achieved the five-year maximum accreditation.

## Bushmaster – A Lesson in Resourcefulness



While many activities around the nation were preempted by the events of Sept. 11, USU administrators refused to cancel September Bushmaster exercises. They quickly regrouped and, in an unprecedented move, relocated the field training from Camp Bullis, Texas to the USU campus. The decision left staff only days to work out the logistics of transporting equipment and staging medical training on National Naval Medical Center's athletic field, but the exercise was a success.

## Experts at AFRRRI Set Standard for Mail Irradiation

As the nation grieved the events of Sept. 11, officials soon faced another crisis. Live anthrax spores were transported through the mail, resulting in the deaths of five people, illness of several others and widespread feelings of fear of exposure to the biological agent. Armed Forces Radiobiology Research Institute (AFRRRI) staff were engaged immediately to discuss what measures could be taken to ensure safety of the mail.



Lima, Ohio and the other in Bridgeport, N.J.

The facilities sort mail formerly handled by the postal station in Brentwood, Md., which was closed due to contamination. Mail is irradiated with a device widely used to sterilize food and medical equipment. AFRRRI personnel, working with the National Institutes of Standards and Technology, tested the system extensively for quality assurance. Dosimeters and surrogate spores were placed in a letter tray, exposed, and read to establish conveyor speeds to ensure sufficient doses.

Prior to this event, AFRRRI researchers had studied the effects of irradiation on biological agents. As a result, the Institute had already established a "kill curve" or standard dosage of radiation necessary to eradicate anthrax spores.

Key to their success is the use of a surrogate spore, which AFRRRI developed and used in its research and subsequent tests and analysis. This spore, while not causing harm, replicates the properties found in live anthrax. This non-toxic spore can easily be placed in an envelope, and then tested after irradiation.

The official standard developed by AFRRRI researchers was used in two mail irradiation facilities — one in

## U.S. Military Cancer Institute Officially Opens

In September, the charter for the U.S. Military Cancer Institute (USMCI) was officially signed by Commanders of the military medical centers in the National Capital Area. The USMCI, which was established in July 2000, is a tri-service initiative to enhance cancer research in the military.

Congress commended this effort, and provided \$2.6 million in the 2002 budget to accelerate the Institute's efforts.

The Institute has its academic base at USU and is under the direction of Dr. John F. Potter, a surgical oncologist and Professor, Department of Surgery at USU. Potter was the founder and director of the Lombardi Cancer Center at Georgetown University and was a regent of USU when President Zimble appointed him director.

Many graduates and faculty members at the University play key roles in this initiative. The Center for Prostate Disease Research and the Clinical Breast Care Project are both members. They have successfully shown how collaboration among clinicians and scientists, and communicating across service and specialty lines, can lead to better diagnosis and therapeutic techniques. The goal of the USMCI is to increase funding for these types of research and clinical projects. Although activities currently are in Tricare Region 1, the Institute plans to expand its membership across the country.

## Building International Relationships

"USU uses medicine to break down international boundaries," says Val Hemming, M.D., Dean of the School of Medicine. The exchange program that USU has developed with other countries fosters collaboration and strengthens relationships. Currently, several countries, including Germany and France, send their military medical students to attend USU programs every year.

In September 2001, USU sent three students, 2<sup>nd</sup> Lt. Grant Lattin, USAF, 2<sup>nd</sup> Lt. Dale Capener, USAF, and Ensign Cari Slafsky, USN, to the National Defense Medical College (NDMC) in Japan, where they each worked alongside professors there.



Dean Hemming accompanied the students and agreed that USU would help the NDMC organize a new military medicine department. Like many other military medical schools, the NDMC educates its medical students like a civilian school and then sends the students for military training. To experience military medicine first hand, three NDMC students plan to participate in Bushmaster during 2002 for the first time.

Each October, the Commandant of L'Ecole Du Service De Santé Des Armées in Lyon, France, invites USU students to its annual promotion ceremony in France. This year, two USU fourth-year students, Ensign John Trask, USN and 2<sup>nd</sup> Lt. Nicolas Noce, USAF attended with Dean Hemming. "Fostering international goodwill, cooperation, and appreciation for other military or medical cultures is a wonderful reason for USU to have this friendly relationship with the French military medical education establishment," says Trask.



Under the leadership of Dr. Emmanuel Cassimatis, Associate Dean for Clinical Affairs, USU is actively involved with exchange visits, research, teaching and learning opportunities with many of its international counterparts. Every year, about 15 students travel to countries such as Japan, Russia, France and Mexico. In return, more than 40 students from various countries visit USU to learn about its unique training and research programs. A few of the international students are also accepted into graduate programs at USU. For example, Brig. Gen. Lionel Lee, the current director of the Defense Medical Research Institute in Singapore, received his Master of Public Health degree at USU.

## New Center for Vaccine Safety

The first of a nationwide network of Vaccine HealthCare Centers opened in September 2001 at Walter Reed Army Medical Center. "This network is a collaborative effort between the Centers for Disease Control and the Department of Defense," said Col. Renata Engler, M.D., medical director of the network, chief of the Department of Allergy and Immunology at Walter Reed, and associate professor in USU's Department of Medicine. "It is designed to provide our service members, their families and clinicians with access to centers of excellence in vaccine safety assessment and clinical immunology experience with adverse drug reactions. We will center on not only the science of immunology but also the education of our patients and regional immunization health care providers, addressing, in particular the public's growing concerns regarding vaccines."

Walter Reed will host the first regional site of the nationwide network, with up to 15 Vaccine HealthCare Centers throughout the Department of Defense. The network lead agent will be co-located at Walter Reed. Engler and Lt. Col. Bryan L. Martin, M.D., assistant chief of allergy and immunology at Walter Reed and assistant professor in USU's Department of Medicine, initiated the concept of the network in collaboration with Navy and Air Force allergy-immunology consultants more than three years ago.

Martin expressed pleasure that the network has evolved into a formal collaboration with the Centers for Disease Control and Prevention/National Immunization Program. "Working with both CDC/NIP and DoD assets, we will be able to develop the educational and

expert consultation resources needed to respond to both current and future vaccine program challenges."

Clinical research in alternative vaccine administration and rare adverse events is needed for anthrax vaccine as well as other vaccines like yellow fever, according to Engler. The research component of the VHC Network will focus on vaccine-related adverse events. "If a vaccine is an occupational requirement or is crucial to survival — such as post-bite rabies or inhalation anthrax — there is a need for alternative administration strategies to save the life of the patient. Decades of allergy-immunology specialty experience in providing adverse drug reaction management, from penicillin to vaccines, will guide the VHC clinical protocols," Engler said.



## USU Homeland Security Committee Established

The University recently established the USU Homeland Security Committee. The brainchild of university president James Zimble, M.D., the committee was developed in response to the terrorist attacks on Sept. 11, 2001. The University has become a key resource for DoD and other government and private organizations since the attacks because of its unique training in emergency medicine and weapons of mass destruction. The Committee will help ensure that the University

remains at the cutting edge in this area, anticipating and preparing for new threats.

The Committee is chaired by Joshua S. Vayer, Director of the Casualty Care Research Center. Senior-level representatives from the School of Medicine, the Graduate School of Nursing, the university staff and the Office of the Brigade Commander are also involved. "Our challenges include ensuring the safety of our students,

staff and faculty, as well as continuing our primary educational mission during recovery and supporting our immediate and extended communities with the unique expertise resident at USU," says Vayer. "The committee will take a broad view of the University to identify its strengths in facing disasters and terrorist threats, then look at its vulnerabilities and coordinate the development of plans to address them."

## Faculty Notes



**Col. George Tsokos, MC, USA**, is the Department of Medicine's new vice chair for research programs. He is responsible for optimizing the overall research performance of the department, as

measured by peer-reviewed publications, funding and scientific distinctions that support the core missions of USU and the Department of Medicine. Tsokos, who will continue to serve as director for the university's Division of Rheumatology/Immunology and chief of the Department of Cell Injury at the Walter Reed Army Institute of Research, also will provide grant writing advice and assistance, and make recommendations to the Department of Medicine's research policy.

**James Segars, M.D.**, associate professor of obstetrics and gynecology, and director of the Reproductive Endocrinology and Infertility Fellowship Program of the National Capital Consortium, has received the National Institutes of Health Director's Award for Mentoring.



**Thomas Darling, M.D., Ph.D.**, Department of Dermatology and director of the Sulzberger Laboratory for Dermatologic Research, is a 2001 recipient of the Doris Duke Clinical Scientist Development Award for his research, "Tumorigenesis in Multiple Endocrine Neoplasia Type I." He was one of nine faculty-level awardees to receive research funding for up to five years.

The New York-based Doris Duke Charitable Foundation seeks to improve the quality of people's lives by nurturing the arts, protecting and restoring the environment, seeking cures for diseases, and helping to protect children from abuse and neglect.

**Robert E. Goldstein, M.D.**, professor and chair of the Department of Medicine, has been inducted as Master in the American College of Physicians - Society of General Internal Medicine.

**Lt. Col. Paul Hemmer, MC, USA**, Department of Medicine, received the Educational Research Award from the Clerkship Directors in Internal Medicine.

**Barbara Alving, M.D.**, Department of Medicine, has been named deputy director of the Heart, Lung and Blood Institute, National Institutes of Health.



## "Pulling Together"

Support for the University takes many forms. Here, faculty, staff and students pitch in at the 1st Annual USU Service Day in October. Volunteers included President Zimble (above), and Col Serio (below, left).



## USU Center Aims to Improve Medical Care for Disaster and Humanitarian Missions

You are a military physician, nurse or veterinarian and are alerted for deployment within 72 hours to provide medical assistance in a complex humanitarian emergency in a foreign country. What will be the most important medical and public health needs? How will you modify the way you have been taught to practice contemporary medicine in this new, austere

environment? What other agencies and organizations will be providing assistance? What is the acceptable standard of care? What ethical, legal and social issues may arise?

To help military and civilian medical personnel learn how to handle such a situation, the Center for Disaster and Humanitarian Assistance Medicine (CDHAM) has worked with the academic departments at USU to develop a distinctive curriculum encompassing such topics. This type of specialized education can be used with residents at military medical centers, Pan-American organizations, and others through distance learning.

The course content is focused on practitioners in major specialty areas and is equally applicable to civilian residency training programs. At present, there are 16 courses under development, all using as a model the Military Medical Humanitarian Assistance Course developed by the Department of Pediatrics in 1996 for teaching residents in pediatrics. To date, 12 of the courses have been

## Building "E" Proposed

The landscape of USU's campus has remained unchanged since 1978, despite considerable growth in its mission, programs, and teaching requirements.

An official space study showed there was a shortfall of current and projected requirements for small, seminar-style classrooms. In addition, it suggested that it would be cost-effective to relocate off-campus leased space to the USU campus.

In September 2001, USU was formally notified that a new academic program center, with estimated costs of \$9.9 million and construction scope in excess of 56,000 gross square feet, had been included for funding in the Medical Military Construction Program for FY 2006. USU hopes to accelerate the timetable for this vitally needed new, three-story educational facility. The Environmental Assessment study was completed in January 2002, and the design process will begin next.

Building E, as the academic program center is known, is expected to include offices for faculty and staff, classrooms, distance education projection studios, computer learning and testing stations, and other support space.



through initial presentation and review and four have reached final form.

Through better education, planning, coordination, and communication, the Center will positively impact the growing worldwide military medical humanitarian assistance mission. Organized within USU, CDHAM is supported by the Henry M. Jackson Foundation for the Advancement of Military Medicine and other humanitarian assistance organizations.

*Craig Llewellyn, M.D., is the new CDHAM director.*



*Llewellyn had been the military and emergency medicine chair since 1987, when he retired from the Army Medical Corps with the rank of colonel. He has been at USU since 1982, serving as commandant of students from 1982-87. He also holds appointments as professor of surgery, and professor of preventive medicine and biometrics.*

## USU Student appointed as AAMC Representative at Large

Only five students in the country are appointed to the prestigious role of Representative-at-Large in the Association of American Medical Colleges (AAMC). One of them is USU second year medical student Ensign John Weatherwax. Weatherwax has been in the Navy for 17 years. As a result of events of Sept. 11, the AAMC is exploring ways to ensure that medical schools and teaching hospitals give adequate training in biological, radiation and chemical terrorism. This is a unique type of training that USU has provided its students for years.

Weatherwax hopes that the AAMC will "utilize the military's specialized knowledge" in this area and that this knowledge will "break down barriers and help everyone focus on a common goal or common enemy." He believes that USU's unique classes on topics such as bioterrorism have become more important to him and his fellow USU classmates and has resulted in a "renewed emphasis on military operations."



# September 11: USU Answers the Call

Preparedness has become one of the nation's hot topics in the wake of the September 11 attacks. As the country's leaders search for ways to bolster homeland defense and ensure an organized response to potential threats, USU has already proven that its curriculum creates graduates who are prepared to tackle any kind of emergency at home or abroad.

USU graduates, faculty and students were among the first responders to New York and Washington, as well as the Pennsylvania crash site. Their extensive training and experience enabled them to react and mobilize quickly, many of them within seconds of the Pentagon attack.

Programs at the University combine classic medical education with military-relevant examples and training, as well as real-world information garnered from the first-hand experience of faculty who, themselves, have operated in adverse environments. The result is a cadre of graduates who are prepared for nearly any disaster conceivable — something they have proven time and again in the aftermath of September 11.

## WORLD TRADE CENTER TRIAGE

### Choosing to Serve

USU class of 1995 alumna **Lt. Cmdr. Christine Casey** was on duty at her new assignment at the Centers for Disease Control and Prevention in Atlanta when news of the attack on the World Trade Center reached her. Casey, a physician in the United States Public Health Service, is the project officer for the Clinical Immunization Safety Assessment Network. She is also a member of a PHS Disaster Medical Assistance Team (DMAT), trained to provide emergency medical care during a disaster or other catastrophic event.

As another plane rammed into the New York skyscrapers, followed by a similar attack on the Pentagon and another, foiled attempt that resulted in a crash in the Pennsylvania countryside, the events of the day took on catastrophic proportions. DMAT members were asked to volunteer their expertise to assist with the rescue and recovery efforts in lower Manhattan. Casey found herself faced with having to make a difficult decision on whether or not to go.

"It was a hard decision to go," Casey said. "We had a choice. When you're told to go, it's much easier than when you can volunteer. You think of your mortality and your babies in a situation like this."

The decision was made easier because of support from her husband, Sean. "He said, 'no, Chris. This is what USU trained you for. We've spent years seeing families get deployed and separated and put in harm's way that



*Lt. Cmdr. Christine Casey helps set up clinic in former delicatessen near World Trade Center.*

haven't had a choice. You have a choice, but there is no choice. We're a service family and so you go."

Casey made her way to New York City, where she and other members of the DMAT were housed in a hotel in midtown Manhattan. They were bussed to the World Trade Center site with a police escort, residents lining the streets with signs reading "Thank You." "It was like a bad movie," Casey said. "The area was lit up like fireworks, with smoke. It was very eerie...horribly indescribable. You could stand in front and look at it, but you still couldn't comprehend it. There was no debris in terms of sharp glass, computers, desks. It was all powder with steel girders. It was war torn. They had to put up netting on the buildings around us to keep stuff from falling. We were evacuated numerous times."

*"I arrived at Ground Zero as a productive member of the team — the learning curve was not as steep as it would have been without the USU curriculum..... That is what sets USU apart."  
— Lt. Cmdr. Christine Casey, World Trade Center Clinic*

As so many others who have been to the scene have described it, Casey said there was an acrid smell in the air, of burning jet fuel mixed with the baby powder-fine, pulverized concrete that was all around. Firemen, policemen, search and rescue teams with dogs, veterinarians, and even dentists were working furiously. There was a lab coat-clad woman in a pink car with a sign pronouncing herself "psychiatrist." Fires continued to burn throughout each day, welders' sparks from cuts made through steel beams igniting debris. Water was everywhere. More than 100 floors of office paperwork littered the ground, while the trees nearby held venetian blinds and other scattered remains resulting from the buildings' collapse. The potential threat of a phosgene gas leak caused by freon from tanks in the basement mixing with the water raised concerns and made Casey thankful for her USU training in identifying chemical agents.

Five medical treatment sites were set up for health care teams, three of which were led by USU graduates including Casey, **Lt. Cmdr. Rochelle Nolte ('96)**, and **Capt. Art French ('84)**. One was a distant site, away from ground zero. The other four were established in a square, where each of the trade center towers had been. Casey and her team were situated in what, previous to the attack, had been a delicatessen. Supplies were plentiful; donations poured in from around the country. The community provided them with free phone access,



*Lt. Cmdr. Rochelle Nolte  
World Trade Center Clinic*



*Capt. Art French  
World Trade Center Clinic*



coffee, food, laundry service, even front row tickets to “Phantom of the Opera” on Broadway, which Casey missed. “The city was amazing,” she said. “Everyone was friendly, nice, and very welcoming. Their generosity was unbelievable.”

Casey’s job throughout her 12-day assignment was to care for the rescue workers on “the pile,” as the mound of rubble from the collapsed buildings was dubbed. Patients included law enforcement officials, firefighters, sanitation workers, telephone repair crews, Red Cross workers and anyone else helping out on the scene. Outfitted in camouflage uniforms, respirators, goggles, and helmets decorated with “I Love New York” decals, the medical team treated eye injuries, reactive airway diseases caused by the dust, viral infections, foot injuries (including blisters caused by molten steel burning through work boots), chemical burns, chest pains, and hypertension. Psychiatric debriefings were done while checking feet or suturing cuts to save time. “You really had to expedite treatment in the context of what you were doing,” said Casey. “The rescue workers were just like [military] troops. You couldn’t get them off the pile. You had to understand the mentality of ‘get me back to the front.’”

Casey is glad to have made the decision to deploy to New York. “It was such a privilege to care for the rescue workers,” she said. “It was unbelievable. That’s why I did military medicine. I like serving alongside people who are service-oriented, like-minded. They were truly amazing.”

**Lt. Cmdr. Susan Lippold ('94)** was in Albuquerque, New Mexico, on Sept. 11, for Office of Foreign Disaster



Lt. Cmdr. Susan Lippold  
World Trade Center Clinic

Assistance training; her regular assignment is with the Health Resources and Services Administration in Chicago. “It was a surreal experience stepping out of the elevator on our second day of class and seeing live broadcast images of the World Trade Center being hit,” Lippold said.

The following day, Lippold received an e-mail message broadcast to all members of the PHS Commissioned Corps Readiness Force asking for volunteers of certain medical specialties. She let them know she was available. Before Lippold could leave New Mexico, she received word from her former classmate and best friend at USU, Maj. Pat Phermsangngam Hogan, that Hogan’s husband of two years, Cole, was missing. Cole Hogan was a major in the Army Special Forces and was assigned to the Pentagon.

“Cole was a wonderful person and a soldier’s soldier,” said Lippold. “This devastating news, plus the fact that the e-mail made it sound as though physicians would be deployed to Bethesda, made me all the more eager to be near Pat and to help in whatever way I could. This was a time, though, when everyone in the country wanted to contribute in some way.” She returned to Chicago and continued to let those calling for CCRF volunteers know that she was available.

On Sept. 21, Lippold got the call to deploy two days later to New York City, to the World Trade Center site. She would be there for two weeks and

would serve as the “Medical Officer in the Field” – the supervising physician at what was being termed “ground zero.” Lippold arrived and took in the scene. “The two things that struck me most when first seeing the site were the magnitude and somberness. It was apocalyptic but the extent of it could not be fathomed until seen,” she said.

Once there, she shadowed her predecessor to learn the lay of the land. He, along with USU Master of Public Health program graduate, **Col. Bob Gum**, who was serving as the chief medical officer in charge at the site, had been deployed Sept. 11, and started working at ground zero three days later. By the time Lippold had arrived, five clinics had been established and four DMAT teams were rotating through the area. The mission was to provide medical care for the rescue and recovery workers on scene, encompassing everyone within the designated perimeter.

*“It was an honor to go, and it was a duty that mustered every skill I have ever developed or hoped to develop.” – Lt. Cmdr. Susan Lippold, World Trade Center Clinic*

Daily meetings were held with members of the New York Fire Department, emergency medical services, local mortuary, hospitals, Public Health Service and New York Department of Health to discuss events of the day before and to prioritize tasks. “Everyone was at ground zero for the same reason,” she said. “And everyone that went to the site knew the entire nation was cheering us on. On the first day I picked up a hamburger at one of the feeding sites, and in the bag was a handwritten note from a child.

In every bag there were either handwritten notes or drawings from children across the United States.”

During the time she spent at the World Trade Center site, Lippold said the most common medical visits were eye injuries, headaches, lung injuries, foot blisters, sprains and strains. “From Sept. 14 through Oct. 4, 6,463 patients were seen in our clinics,” said Lippold. “If one excludes visits for medical supplies, at least one-third to one-half of the cases treated were truly medical in nature. This meant that not only was time not lost with workers having to seek medical attention outside of the perimeter but that, more importantly, workers who otherwise would not have sought medical attention were treated and able to return safely to work.”



In her last week there, Lippold said the number of patient visits peaked at around 500 per day, but that number tapered off as things on the pile changed. Operations switched to using more heavy equipment and fewer volunteer workers, but it did not lessen the impact of the situation for

medical staff. “There were multiple stressors,” said Lippold. “The obvious one was literally working on a site of mass destruction and death.

The fact that this was man-made was all the more horrific. But we were too busy to dwell on this, nor could we if we wanted to get any work done. The physical stresses of sleep deprivation, cold and wet weather and sore, blistering feet were real,” she continued. “Walking around the site, often in the dark, and through or near foul smelling plumes of smoke with hard hat and respirator, without knowing true environmental hazards, was also real.”

The biggest challenges she says she faced were logistical. Although work plans were developed daily, implementing those plans often took much longer and had more permutations than were expected. Lippold said situations changed hourly, resulting in chaos that became more organized over time.

She said the medical issues were the least challenging of everything she faced, primarily because of efforts of the DMAT and CCRF teams. She credits Col. Gum with making her job as Medical Officer in the Field easier. “Having a boss one could consult with or access quickly, who thought methodically and conveyed information concisely was a real treat in this chaotic time,” she said. “It made my work all the more possible.”

But, she said, it was also during those chaotic periods that she realized what she was experiencing paled in comparison to people who lost loved ones, including her friend, Pat Phermsangngam Hogan. Lippold added, in thinking back, that several things can be said about her experiences. “It was an honor to go, and

it was a duty that mustered every skill I have ever developed or hoped to develop.”

## PENTAGON TRIAGE Springing into Action

**Col. John Baxter** is no stranger to the Pentagon. As commander of the Pentagon flight medicine clinic, he has served within the five-sided seat of power for more than six years. Baxter, a USU class of 1989 alumnus, is also the physician to the Secretary of Defense.



Col. John Baxter  
Pentagon Clinic

On Sept. 11, Baxter and his staff were conducting morning clinic, with several patients scattered throughout the various screening rooms. What began as a routine day suddenly turned into chaos as American Airlines flight 77 slammed into the Pentagon at more than 500 miles per hour.

The staff of the fourth-floor flight medicine clinic heard a loud, but muffled, noise which was followed by an alarm and shouts to evacuate. Thinking a bomb had exploded, Baxter and his crew of physicians, nurses and technicians immediately grabbed emergency trauma supply bags and ran towards the tri-service DiLorenzo Tricare Health Clinic, their designated emergency rendezvous site.

Several months prior, the flight medicine clinic had conducted mass casualty training exercises in conjunction with the DiLorenzo clinic, which is commanded by USU class of 1982 graduate Army **Col. Jim Geiling**. In an eerie twist of irony, the exercise simulated a



plane crashing into the building, and members of both health care facilities would soon realize how invaluable that training would be.

Baxter and his staff were directed to the fifth corridor of the Pentagon, with reports of injured personnel. Running to the site, they found a severely burned Army officer who, despite his agony, repeatedly asked them to help co-workers trapped in his office. Even as dense, acrid smoke filled the air, Baxter sent part of his team to find additional victims said to be in the “C” and “D” corridors. He remained with the Army officer, starting an IV, administering morphine, and bandaging his most painful wounds until he was taken out on a stretcher.

As warnings of an approaching airplane spread throughout the building, the health care crew grabbed their equipment and headed down the fifth and sixth hallways and upstairs searching for more injured personnel. Although they could barely see through the thick smoke, their eyes and lungs burning, Baxter and his staff ran as far as they could, shouting that they were medics and yelling for anyone who might still be there to “run this way” to safety. They repeated their actions on each of the floors below them in the affected hallways, finding no new patients.

Baxter’s team made their way to the Pentagon’s center courtyard where they found an injured person lying on her back. At that moment, screams of “inbound, two minutes” filled the air, so they picked up the patient and ran with her back into the building and out to a pre-determined triage site along Boundary Channel Drive.

Outside in the triage area, Baxter’s staff joined that of the DiLorenzo clinic to treat patients with burns, inhalation and blast injuries. Geiling had been at Walter Reed Army Medical Center and was blocked access to the Pentagon as he tried to return to help. In his stead,



Maj. Bridget Larew  
Pentagon Clinic



Maj. Liza Lindenberg  
Pentagon Clinic

**Maj. Bridget Larew**, a class of 1998 alumna of USU’s Graduate School of Nursing family nurse practitioner program and chief of primary care, directed the efforts of the DiLorenzo clinic staff. Working alongside her were doctor of medicine graduates **Maj. Liza (Grapilon) Lindenberg (’96)**, an Army family physician and **Capt. George von Hilsheimer (’00)**, who had only been assigned to the clinic less than a week. Both sets of clinic staffers donned blue vests labelled with “physician,” “nurse,” or “EMT” for easy identification — an idea borne of their previous mass casualty exercise.

When the plane hit, Larew, a 16-year Air Force veteran, said clinic staffers didn’t see or hear a thing. They didn’t even get a whiff of burning jet fuel. In fact, many people were watching coverage of the World Trade Center attacks. She said it wasn’t until another officer ran into the clinic and told them to evacuate that they knew something was wrong, exactly what was still unknown.

Instead of immediately leaving the clinic, Larew and the clinic’s chief

nurse went into action. Larew said they initially had to evacuate patients already in the clinic, even as people injured from the crash began arriving. Some had serious burns. Most people, those with less serious injuries, were examined at triage sites that Larew helped set up outside.

“It was hard to keep track of time, everything was in slow motion,” said Larew. A second order to evacuate came with reports that another plane was heading toward the Pentagon. Even with that, she said more than an hour passed until they knew for sure that a fuel-laden commercial airliner had already struck the building. “It didn’t register that a plane had hit, even though you knew about the World Trade Center,” Larew said. “I just clicked on autopilot.”

When the medical teams finally relocated to the Pentagon’s center courtyard, Larew was responsible for establishing communications and ensuring availability of medical supplies. In addition to treating the injured, they administered IV solutions to the firefighters to ensure they didn’t suffer from dehydration while fighting the fire.

Larew recalls an unforgettable scene in the courtyard: hundreds of volunteers, “smoky and hazy and very smelly,” an area she said she hasn’t returned to since Sept. 11. “I remember thinking (around 3 p.m.), it’s not fair,” she said. “I’m supposed to have some transition time to get ready to treat patients under fire. You know, traveling to a war zone and preparing the patient care sites.”

The long day eventually turned into evening. It was past 8 p.m. when Larew finally left the Pentagon. But first, she went to the crash site on the west side

of the building. “I could see file cabinets and offices completely out in the open,” she said. It wasn’t until she got home that what had happened really registered with her, even though she had known by 3 p.m. there was little chance anyone would be brought out alive.

As for the aftereffects from the terrorist attacks, she said they’ve been almost as bad as the crash itself. “We had to set up an emergency command post, (and) host tenet units such as the critical incident stress management teams and environmental monitoring units. We were not prepared for dealing with all of the different uniformed services demanding information in their format, on their schedules. How we fixed this was we creatively organized all the data each service wanted into one report we put out daily so that we did not duplicate work.” And because of Sept. 11 the very nature of her job has changed, she added. “Our mission has changed from a primary care clinic to being first responders in a high value target.”

Weeks after the attack there was still work to be done in the fight against terrorism as Pentagon medical teams screened more than 1,000 workers for anthrax. And exactly one month after the attack, her team provided support for a memorial service attended by more than 20,000 people. Larew worked 12-hour shifts until Thanksgiving.

Larew said she is confident that all of the patients treated that day received the best medical care possible. But then she quickly reflected back to the horror of Sept. 11. “I still get a chill up my spine when I smell smoke and hear sirens, but it will help me keep alert so that I will never forget that day.”

### From the Classroom to the Field

Several students in the Graduate School of Nursing’s Family Nurse Practitioner Program quickly jumped in to provide treatment at the Pentagon and a nearby clinic.



Capt. Joseph Candelario  
Pentagon Response

**Capt. Joseph Candelario**, a first-year Army student had already been seeing patients in the hospital at nearby Fort McNair in northern Virginia since 6:30 a.m. when news came of the attacks on the World Trade Center. Having stepped outside for a few minutes, he saw the plane streaking toward the White House before it made a sharp turn to slam into the Pentagon.

“I returned to the clinic to hear our radio contact from the clinic in the Pentagon calling for more help and supplies,” Candelario said. “We made immediate preparations to leave one doctor, nurse practitioner and a medic at the clinic, while I, along with three medics, took supplies to the Pentagon.”

After distributing the supplies, the team stayed to help treat some of the casualties and later joined a search and rescue team at the impact site. The captain said they helped free a few people still trapped by debris but also found many body parts and about a half-dozen bodies. Unable to go on

*“It sounded like a flyby, only with a bigger sound and too close for comfort. Then we heard a boom.” – Capt. Iise Alumbaugh, Pentagon Response*

because of the fire, Candelario said rescue workers waited until the fire could be put out.

What they didn’t know, he said, was that it would be more than a day before that would happen. With the fire out of control, the response teams pulled back to the Pentagon’s center courtyard to set up a morgue. They stayed until 7:30 p.m., then returned to Fort McNair, where Candelario briefed the hospital’s officer in charge of the Pentagon response.

Meanwhile, **Capt. Iise Alumbaugh** was beginning her first day of rounds at the Navy Annex in Arlington, Virginia, just up the hill from the Pentagon, when she heard Flight 77 roar overhead. “It sounded like a flyby, only with a bigger sound and too close for comfort,” she said. “Then we heard a boom.”



Capt. Iise Alumbaugh  
Pentagon Response

Racing outside, Alumbaugh, a member of the Class of 2003, and other medical staffers looked down the hill and saw the Pentagon in flames. However, instead of heading to the Pentagon, they stayed at the clinic to await patients there. Along with fellow GSN student **Capt. Lisa Ford**, Alumbaugh helped treat several patients, including one who suffered burns on his back, legs and arms, and another who fell through two floors which had collapsed under him.



Capt. Lisa Ford  
Pentagon Response

Captain Alumbaugh said she remembers the rest of the day being filled with



rumors of other attacks, trying to grab a bite to eat and waiting for more patients, although very few arrived. In fact, she said there was talk of turning the treatment area into a morgue. Relieved when the decision was made not to do that, Alumbaugh recalls, "I was thinking that not having a morgue meant not having any reason to have a morgue. Unrealistic of course, but a thought just the same."

## FORENSICS Handling the Difficult Task



Cmdr. Douglas Knittel  
Pentagon Forensic

Within one hour of American Airlines flight 77 crashing into the Pentagon, reducing layers of infrastructure into flaming rubble, Navy **Cmdr. Douglas Knittel, MC, USN ('85)**, was on the phone to the Armed Forces Institute of Pathology (AFIP) in Washington, D.C.

Knittel, a forensic pathologist assigned to the Naval Medical Center in Portsmouth, Virginia, who is one of only six U.S. regional armed forces medical examiners worldwide, knew he would be needed.

Within 24 hours, Knittel was in Washington, calling as many uniformed pathologists and other specialists as possible to assist in the task of identifying victims' remains. A team of more than 50 AFIP staff members, including Knittel, met at the Dover Air Force Base, Delaware, Port Mortuary on Sept. 13 to begin the job. Along with Knittel, USU alumni **Maj. Glenn Sandberg ('87)**, **Maj. Elizabeth "Lee" Rouse ('95)**, **Maj. Jim Feig ('94)**, **Maj.**



Maj. Jim Feig  
Pentagon Forensic

**Brian Kendall ('90)**, and **Lt. Col. Lisa Pearse ('89)**, answered the call to help.



Maj. Brian Kendall  
Pentagon Forensic

Sandberg is the assistant chair of neuropathology and ophthalmic pathology, and the recently appointed chair of the department of scientific laboratories at the Armed Forces Institute of Pathology (AFIP). On Sept. 12, he volunteered to assist. The next day he was at the port mortuary, awaiting the arrival of the first sets of remains from the Pentagon. Rouse, a forensic pathologist assigned to Wilford Hall USAF Medical Center in San Antonio, Texas, is another of the six regional armed forces medical examiners. Feig is currently an outservice forensic pathology fellow in the Bexar County, Texas, medical examiner's office, and Kendall serves as chief of anatomic pathology at Wilford Hall. The four of them, along with Knittel, had similar roles while at the port mortuary conducting autopsies, collecting specimens for DNA analysis, and trying to identify bodies.



Lt. Col. Lisa Pearse  
Pentagon Forensic

Lisa Pearse's role was different than those of her fellow USU alumni. As an epidemiologist and chief of the mortuary surveillance division in the office of the Armed Forces Medical Examiner at AFIP, Pearse is responsible

for monitoring all active duty deaths for trends, particularly looking for sudden spikes or changes that could represent emerging infections or subtle biological warfare attacks.

Pearse said her office at AFIP is new and no one really considered how an epidemiologist would fit into the overall mission in the event of a mass casualty. However, Sept. 11 changed all of that. Data collection and case tracking turned out to be essential elements of the identification mission at the port mortuary. Pearse designed a database to describe and follow all specimens, from full autopsies through the smallest specimens for which identification was probable based on DNA extraction. Her system tracked demographic information on the missing, whether or not medical records, dental records or DNA profiles were available for each of the 188 victims, and tracked who had been identified and by what method (dental, fingerprint or DNA.) According to Pearse, it was the first time that electronic record keeping was used by the medical examiner's office to supplement paper records, and it allowed for real-time reporting throughout the mission. The data collected by Pearse is being analyzed to evaluate casualty identification modalities, injury patterns, and structural issues in the Pentagon that might have influenced survival patterns.

Early on, staff worked 14-hour days, starting at 7 a.m. and continuing well into the evening. The average length of stay was from one and a half to two weeks for most of the volunteers. Their first step in the identification process was to fingerprint the victims. The FBI's latent prints experts were there assisting in the task. If fingerprints were not available, dental records

were examined for a positive match and DNA specimens were collected. Many of the Pentagon casualties were military members whose records were readily available, making the identification much quicker.

The DNA samples were turned over to a specialized team from AFIP's DNA identification laboratory to catalog and ship back to their headquarters in Rockville, Maryland, for final analysis. The Department of Defense is a leader in the use of DNA for identification purposes, and AFIP maintains a repository of over 3.2 million blood specimen sample cards for all active duty and reserve personnel. Experts at the DNA lab used the cards to match the tissue samples sent to render positive identifications. Autopsies were also conducted to determine the exact cause of death.

Knittel said overall everyone was exhausted, but were kept going by the thought they "were helping people get back to their loved ones and providing information or evidence to enable the FBI to catch whoever was responsible." "It made the fatigue go away," he said.

*"My experiences at USU were the best possible preparation for functioning in a joint environment."*  
— **Cmdr. Douglas Knittel, Pentagon Forensic**

Meanwhile, **George Holborow**, curator of the Anatomical Teaching Laboratory at USU, responded as a member of the Disaster Mortuary Operational Response Team (DMORT) to the Pennsylvania crash site. DMORT is part of the National Disaster Medical System, a federal team operating under the auspices of the Office of Emergency

Preparedness in the Department of Health and Human Services.

Holborow served as the mortuary officer and anatomical specialist at the temporary morgue that was established at the Army National Guard post in Somerset County, PA. He helped collect evidence and identify the remains of the passengers and crew of United Flight 93.

## HAZMAT Securing the Scene



MSgt. Roberto Rolon  
Pentagon Hazmat Safety



SSgt. Victoria Candelora  
Pentagon Hazmat Safety

**Master Sgt. Roberto Rolon** and **Staff Sgt. Victoria Candelora** were part of an Air Force Bioenvironmental Engineering Contingency Support Team that performed environmental and personal air sampling at the Pentagon in the days following the attack there. They are assigned to USU's Environmental Health and Occupational Safety Office.

The team, which comes under the direction of the U.S. Army Center for

Health Promotion and Preventive Medicine, took more than 1,060 direct environmental air quality measurements, 290 personal air samples and 369 wipe samples from Sept. 12-20. They monitored members of the U.S. Army's Old Guard to evaluate and document potential health risks from

burning jet fuel and the building itself during search and recovery efforts. "These samples ensure air quality levels were within acceptable limits and aided in decisions for work rest cycles of recovery operation teams," said Rolon.

Also at the Pentagon, **Lt. Cmdr. Philip Smith**, along with **Chief Hospital Corpsman Jeff Sanford** and **Hospital Corpsman First Class Angela Viers** of USU's

Department of Preventive Medicine and Biometrics (PMB), set up a command unit for real-time chemical detection for the Army and the Environmental Protection Agency. For several days beginning Sept. 15, they conducted 24-hour operations that resulted in more than 120 immediately analyzed collections of volatile organic compounds, primarily from the jet fuel. Initially, they also checked for asbestos. Assisting them were **Lt. Cmdr. Gary Hook**, **Maj. Greg Kimm** and **Capt. Tara Hall**, all graduate students in PMB.

Using special equipment that could analyze samples quickly, they were able to pass along the results to the EPA and other organizations in less than an hour, helping them determine when it was safe for recovery teams to go into offices that were damaged by the crash.



Lt. Cmdr. Gary Hook  
Pentagon Hazmat Safety



Maj. Greg Kimm  
Pentagon Hazmat Safety



Capt. Tara Hall  
Pentagon Hazmat Safety



One of the most unique aspects of a USU education is the extensive emergency response training that all graduates receive. Students learn not only how to provide a medical response to disasters, but also how to organize the response from a tactical and operational perspective. Although it is often assumed that such training will be used primarily in war-time and on foreign soil, the staff and graduates of USU showed on Sept. 11 and in the days afterwards that the training they received truly prepared them for anything.

### USU Center Puts Training to the Test

The Casualty Care Research Center (CCRC) played an important role responding to the recent attacks. Staff members were among the first medical personnel to arrive at the Pentagon on Sept. 11. That morning, **Jason Kepp** was working as an instructor with CCRC's Counter Narcotics Terrorism Operations Medical Support (CON-TOMS) Program, which provides specialized medical training to tactical law enforcement programs. He was in the Anacostia section of Washington, D.C., teaching members of the U.S. Park Police how to respond safely and effectively to the crowds of demonstrators expected to turn out at the upcoming meeting of the International Monetary Fund when the group heard the explosion across the river. Within moments, Kepp and teammate **Keith Kettell** were on board two Park Police helicopters headed for the Pentagon.

Despite the confusion at the scene, Kepp and Kettell worked with military

and civilian personnel to set up a triage and treatment system. Minutes after landing, Kepp was back on board the chopper, treating two DoD civilians on the way to the hospital.

The Center served as a lifeline to the medical support teams deployed to New York's World Trade Center during the aftermath of Sept. 11. CCRC staff went to the site of ground zero on Sept. 12 to provide ongoing medical aid to rescue personnel working there in the weeks following the terrorist attacks.

CCRC program staffers have been working overtime since the attacks, providing assistance at both the Wash., D.C. and New York sites. Back in the classroom, CCRC personnel will apply their experiences at the scenes to their curriculum, imparting first-hand knowledge to better prepare students for future emergency situations they may encounter.

### About CRCC

The Casualty Care Research Center is just one example of the university's ability to transfer the military practices and lessons learned to both the USU curriculum and to training programs for civilians. Located in the Department of Military and Emergency Medicine, CCRC is a center of excellence on issues related to injury control, casualty care, and operational medicine. It is staffed by a variety of military and civilian physicians, pre-hospital care experts, and scientists who work to train medical students, medical personnel, and graduate physicians in military-relevant operational medicine. In addition, the Center provides research, resource, and technical assistance to other government and private organizations who provide "first response" care in the field.

## Trauma-Induced Stress

Among the first-responders to the Pentagon was a team given the daunting assignment of counseling those immediately affected by the Sept. 11 attack. The Navy Special Psychiatric Rapid Intervention Team (SPRINT) was dispatched on Sept. 12 to provide support for those fortunate enough to have survived the attack, but who were in danger of suffering the potentially debilitating effects of post-traumatic stress disorder (PTSD).

Capt.(sel) Thomas Grieger headed the team, which also included Lt. Cmdr. John Lyszczarz and Lt. Cmdr. John Kennedy. These three have in common more than their SPRINT experiences. All are graduates of USU.

The USU Department of Psychiatry not only provides a first-class education, but also is on the leading edge of research in mental health. Recently, the department obtained approval from the Navy to conduct a health surveillance project involving approximately 1,000 active-duty Navy personnel involved in the Sept. 11 attack and its aftermath. By observing the personnel, study directors hope to accomplish several goals, including identifying the specific prior military training and experiences that impact a Service member's ability to cope with and to recover from a terrorist attack. Through the study, the researchers hope to garner information that will help them better design post-event interventions.

Another way in which USU is making strides in research as well as assisting the civilian and military communities is through the Center for the Study of Traumatic Stress. Based in the Department of Psychiatry, the Center is a public-private partnership tasked with discovering the full extent of the consequences of trauma and disaster and applying that information to help people cope with traumatic events. The Center operates a world-class research program and provides education, consultation, and training to both government and private agencies.

Under the direction of Dr. Robert Ursano, chair of the psychiatry

department, the Center conducts extensive consultation and outreach efforts on the consequences of trauma, as well as health policies. He says, "The cases of bioterrorism-related anthrax that have occurred since Sept. 11 have highlighted the need for changes in the health care system. Substantial funds and effort are needed to render the system capable of handling a serious attack of bioterrorism, whether it involves biologic, chemical, or radiologic weapons." Center personnel also provide hands-on assistance, helping individuals and entire organizations recover from traumatic events.

Over the past year, the Center has hosted working groups on bioterrorism; taken part in a consensus conference on the threat of biological and chemical weapons attacks and its effect on individuals, groups and communities; and hosted a conference on municipal responses to bioterrorism. At the conference, which was attended by more than 30 state and local officials from around the country, participants realized that mental health professionals must play a greater role in efforts to prepare for and respond to terrorist attacks.

*"Physicians can counter their patients' fears by educating them about the degree of actual risk, providing information on ways of decreasing risk and teaching coping strategies." – Dr. Robert J. Ursano*

In the aftermath of the attacks, Ursano and Col. Ann Norwood, MC, USA, ('81) were called on by many groups, including media outlets such as NPR and ABC News, to counsel the nation on how to deal with the trauma caused by the events. "Early symptoms (of PTSD) usually respond to a number of approaches, such as helping patients and their families identify the cause of the stress, limiting further exposure and advising patients to get enough rest and maintain their biologic rhythms. Educating patients and their families can also help them to identify worsening or persistent symptoms," says Ursano. The Center

also produced a number of fact sheets offering advice on coping with the effects of traumatic events. In addition to being posted on the Center's web site, the fact sheets were also placed on the American Psychiatric Association's Web page on disasters.



The University's dedication to top-level psychiatry programs produces results. Many of those results are evident in graduates like Capt. Grieger ('87), Lt. Cmdr. Lyszczarz ('93) and Lt. Cmdr. Kennedy ('94) who, along with their fellow team members, provided counseling for 20 days following the attack. By the end of their deployment, SPRINT members had made contact with 1,749 active duty and civilian personnel.

One woman who was helped by the team was subsequently interviewed for a news report in which she said that SPRINT sessions "allowed us a chance to take care of ourselves." This was especially important for staff members who, immediately after the attack, had to concentrate on supporting the nation's response.

Many thanks to the faculty, alumni and students who shared their stories and photographs for this article. We would like to acknowledge the other members of the USU community who contributed to the response, who were not included in this feature article.

# Combatting Bioterrorism

The target of the attack was the President of the United States, whose daughter was to marry the son of the U.S. ambassador to India. Everyone knew the exact date of the rose garden wedding, and everyone expected that the mother of the groom (the U.S. ambassador) would be spending a lot of time next to the father of the bride.



Terrorists infected the U.S. ambassador with pneumonic plague three days before the wedding, just before she was to leave New Delhi for Washington. She was expected to develop flu-like symptoms on the day of the wedding, but no one expected her to miss her son's special day.

The patient is rushed to the hospital where the attending physicians are racing against time to assess the patient's condition, make a diagnosis, and determine proper treatment – before the patient becomes a fatality. They are also struggling with the proper

means to contain what they suspect is a deadly and highly contagious pathogen.

Luckily, this is not a real situation, and the physicians trying to diagnose the patient are really students participating in a course in the USU Patient Simulation Laboratory. It's the type of course you won't currently find offered at any other medical school in the country.

Since its first days, USU has incorporated instruction on chemical and biological warfare into its curriculum. Recently, Dr. Val Hemming, Dean of the F. Edward Hébert School of Medicine, was called to Capitol Hill to testify before Congress on the subject, and the possibility of its inclusion in other universities' curricula. Departments such as military and emergency medicine, pharmacology, biochemistry, microbiology and pathology offer classes focusing on the effects of chemical agents and radiation, and biowarfare agents.

One such course is Navy Cmdr. Aileen Marty's "Scientific, Domestic and International Policy Challenges of Weapons of Mass Destruction and Terror: Part I," given through the pathology department. Marty is an expert in emerging infections and pathology. Her course, first offered in the spring of 2000, provides an understanding of the medical features and medical countermeasures for living agents or organic products of potential use in warfare, terrorism or criminal activities in the context of the political implications of such weapons of mass destruction. Also incorporated into the course is a hands-on training phase conducted in the university's Patient Simulation Laboratory, operated by Richard Kyle and Navy Lt. Cmdr. Darin Via ('91).

Kyle is an instructor in the Department of Anatomy, Physiology and Genetics, and serves as the operations director of the patient simulation laboratory. Via, who is assigned to the department of anesthesiology, is the clinical director

for the laboratory. The laboratory itself is a joint venture of both departments and was established in January 1998, by Kyle and USU class of 1986 alumnus, Dr. Paul Pudimat, a former faculty member in the anesthesiology department. A mannequin, operated through computers and attached to standard clinical monitors, is used as a teaching tool for medical, nursing and graduate students, as well as residents, physicians and others. The simulator's real strength is that "medical disasters" can be scheduled and students can practice repetitively until they gain familiarity, competence, and poise with the unexpected. As Kyle says, "With simulation your first time for real doesn't have to be your first time."

In conjunction with Marty's course, the Patient Simulation Laboratory has produced inhalational anthrax and marine toxin exposure scenarios, with another featuring smallpox currently in development. The pneumonic plague scenario mentioned above is also played out in the Simulation Laboratory, placing the students in a real-life situation. Part two of Marty's course, first offered this past fall, focuses on nuclear, radiological, high explosives, chemical agents, and unusual weapons and is also acted out in the Laboratory. These realistic exercises are successful when the class members reach out to others and form teams to solve problems. It will give them experience with practically every facet of a response to a biological or chemical terrorism event.

USU's expertise in biological agents doesn't rest solely in the classroom. Faculty and scientists throughout the campus and beyond are conducting research into various diseases that have the potential to be weaponized. Well-known viruses such as Ebola and Venezuelan equine encephalitis, as well as those little known like the Hendra and Nipah viruses are among those currently being studied. Infectious diseases like brucellosis and smallpox, as well as dangerous bacteria

## Diagnosis: Anthrax



Cmdr. Aileen Marty

Ernie Blanco lay dying in a Miami, Fla., hospital bed, a victim of anthrax. While Blanco, a mail courier employed by American Media, Inc., the Boca Raton publisher of the tabloid newspaper "Weekly World News" and others, exhibited many symptoms typical of the disease, it was not exactly a classic case, and no one except USU faculty member Cmdr. Aileen Marty would confirm the diagnosis suspected by his doctors.

As fate would have it, Dr. Marty's mother, Judy, who lives in Miami, was looking for a new car and she struck up a conversation with car salesman Willie Orth. They talked about terrorism and the events of the day. Orth confided in Judy Marty that his father-in-law, Ernie Blanco, was suspected to have anthrax but no one was sure. They were afraid he would die before it was confirmed. Judy Marty told him to call her daughter, an expert in emerging infections, particularly anthrax, and he did. After discussions with the family, doctors, and other experts, Dr. Marty confirmed that Blanco was, indeed, suffering from anthrax, a diagnosis that was eventually confirmed by the Centers for Disease Control and Prevention in Atlanta. Blanco's prescribed treatment, Ciprofloxacin, was continued, and he underwent surgery to drain fluid from his lungs. Ernie Blanco eventually recovered, but the attacks on the nation were just beginning.

like botulism could all be used as terror weapons to target humans, and all can be found under the microscopes of USU researchers.

USU also gains and shares its expertise in weapons of mass destruction through operational and consultative services, and continuing education programs. After the anthrax attacks in October, Marty was asked by Captain Richard J. Seeds, Jr., head of a volunteer fire department in Pennsylvania, to develop a course on weapons of mass destruction to give to more than 500 firefighters. Dr. Marty developed the course, and collected a team of experts to provide the training. Since then, the team has traveled across the country to train trauma surgeons and other health care workers, and even developed Web-based lectures for the FDA. Marty has also lectured extensively on the subject, both before and after the attacks, at universities, professional meetings, and government agencies.

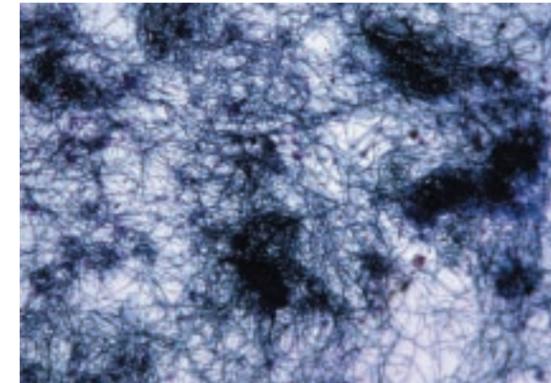
In November, Marty played a key role in the Department of Veterans Affairs' film, "Bio-terror Agents, What Really Happens in the Lab" (Part One), which was broadcast live by satellite to all hospitals throughout the VA system. The program was the first of two designed to help employees better recognize bio-terror agents in the lab. Recognizing that the hospital lab in Florida played a crucial role in an unannounced terrorism event, Marty's expertise, along with other participants, was used to reinforce the need for all hospitals to be aware of how to diagnose, treat and manage anthrax and other bio-terror agents.

The program focused on bacillus anthracis and plague and used a lab at USU to highlight effective handling of these diseases. Clinicians need to be involved early on in lab analysis, and the program emphasized the analysis of test results by experts at the Armed Forces Institute of Pathology (AFIP). Also discussed was when and how to involve the CDC and FBI in these



events. Part two of this widely disseminated program will focus on lab management of brucellosis and smallpox.

The Casualty Care Research Center (CCRC) conducts six specialized training programs on weapons of mass destruction for a variety of audiences. These programs were developed four years ago and continue to meet the need for succinct, focused training. For example, CCRC designed and implemented the train-the-trainer program used by the United States Marshals Service to protect federal court facilities.



Another CCRC course, the Health Care Systems Program, is designed to teach hospital staff how to protect their facilities against biological agents. Highlights include identifying and containing contaminants, controlling hospital air conditioning systems, and medical management of patients exposed to biological agents beyond just the administration of antibiotics, among other topics. Discussions on four major agents — anthrax, plague, smallpox and botulinum — take place, along with guidance for controlling and recirculating antibiotic inventories in preparation for a biological attack.

Courses include all facility personnel from the janitorial staff to the chief executive officer, and take place on-site within two days.

Other faculty and alumni of USU can also be found in the forefront of efforts to educate the public to the dangers and health risks associated with bioterrorism through workshops, conferences, and seminars. Recently, Lt. Col. Michael Roy and Lt. Col. Charles Engel, both associate professors of medicine, and Lt. Col. Gregory

Argyros, assistant professor of medicine, participated in a meeting of the National Capital Region American College of Physicians – American Society of Internal Medicine at which they discussed topics ranging from anthrax and other agents of bioterrorism to blast injuries to the psychological consequences of terrorist incidents. U.S. Public Health Service Capt. Kevin Yeskey, class of 1983, was among several key speakers at the First Annual Global Conference on Bio/Chem Terrorism, held in

Arlington, Virginia, in February. Yeskey is the director of bioterrorism for the Centers for Disease Control and Prevention in Atlanta.

With an emphasis on training, consulting, and research, USU prepares its students and other health care and emergency personnel to deliver effective emergency medical care. The university's unique expertise also helps the nation prepare and stand ready to defend against future threats of biological or chemical attack.



## Setting Safety Standards

After the first anthrax-related death occurred in Florida, Dr. Christopher Holland was sent into action. Holland, a part-time occupational medicine physician in USU's Environmental Health and Occupational Safety office, is also a consultant to the U.S. Environmental Protection Agency. He traveled to Boca Raton to help write a safety and health plan after

the first victim, a co-worker of Ernie Blanco, died. Prior to that, the EPA set up an anthrax command center in Washington, D.C., as soon as the first letter was discovered, and Holland was extensively involved in its operation. He consulted on safety and health issues, and staffed an evening clinic where Federal workers and contractors were medically cleared for antibiotic

prophylaxis and the antibiotics distributed. Holland made in-service educational presentations to the workers at American Media and those in Washington, and worked with the EPA safety and health professionals to devise a plan for the work done in D.C. His involvement with the anthrax command center is ongoing.

## Attacks on Capitol Hill

Navy Lt. Michael Keith, USU class of '97, did not expect to be in the midst of a national crisis when he reported for duty at the U.S. Capitol as a member of the Office of the Attending Physician to Congress. Keith had only been out of his internal medicine residency for one year when he was given the prestigious assignment to care for the nation's legislative leaders, including Members of Congress and Supreme Court Justices, as well as visiting dignitaries, pages, staff and tourists at the Capitol.

*"Among all the confusion following the anthrax attacks, Military Medicine shined." – Navy Cmdr. Greg Martin*

On Oct. 15, Senator Tom Daschle's office staff received a letter found to contain vast quantities of anthrax spores, and his office was immediately quarantined. As the scope of the event increased, Keith's role expanded to include performing epidemiological nasal swabs for those working in or visiting the Capitol complex to detect exposure to the bacteria. He also supervised the creation of a database to document the swab results and the

distribution of antibiotics to those patients. The database allowed Keith to provide information updates to the Attending Physician, Rear Adm. John Eisold, an adjunct professor in USU's medicine department. Eisold used that information in briefings to Congressional offices and the media.

Also on the scene was Cmdr. Greg Martin, head of infectious diseases at the National Naval Medical Center, consultant to Rear Adm. Eisold on infectious disease, and adjunct professor at USU. According to Martin, there were 28 patients who had positive swab results and were considered highly-exposed. Almost 70 other patients who were in the room with one of the 28 patients were considered potentially highly exposed.

For several months following the attack, Keith and Martin continued to see patients in the Capitol Complex. They provided counseling, education and additional diagnostic testing, and reassurance to the patients under their care. They also worked extensively with medical officials from other government

agencies, including the Centers for Disease Control and Prevention (CDC), Environmental Protection Agency (EPA), Federal Emergency Management Agency, and the FBI to help develop clinical guidelines for medical response to anthrax attacks.

Specifically, they, along with Eisold, Aileen Marty and other military experts, were instrumental in convincing the CDC to change their guidelines to make the anthrax vaccine available to anyone exposed to anthrax. The argument they used in favor of the vaccine was that it should be used as a precaution because there is so little knowledge about the persistence of inhaled spores after 60 days. Although it was made available to anyone with potential exposure, these physicians recommended that only those highly exposed, in this case 70 people, receive the vaccine. To help patients make informed decisions on whether or not to take the vaccine, they led meetings with staff members who were highly exposed. They also briefed office managers throughout the Hill, to help inform all employees about the vaccine.

## Early Anthrax Diagnosis

The threat of inhalation anthrax captured the nation's attention last October when five people died from exposure to the lethal virus. A summary of medical findings in the first ten patients treated for anthrax infection after October 4, 2001, revealed the need for a sensitive diagnostic method to detect exposure in the early stages. That's when a team of military scientists at the Walter Reed Army Medical Center, led by Maj. Robert Bridwell, MC, USA, USU class of '92 and assistant professor of nuclear medicine at USU, turned their focus to developing an early diagnostic test for the infection.

"Once anthrax spores were discovered in the U.S., there was a real urgency to scour the various methods that currently exist to determine whether any offered promises in the early diagnosis

of anthrax infection," Bridwell told *The Journal of Nuclear Medicine*.

Bridwell and his team zeroed in on an imaging technique using the anti CD15 antibody after confirming its efficacy in the detection of appendicitis, osteomyelitis, and other infections. Researchers recently received FDA approval to begin a clinical trial to assess the efficacy of the antibody called LeuTech, developed by Palatin Technologies, Inc., in the diagnosis of anthrax. Patients with exposure may now be imaged using the technique. "LeuTech gives us the ability to pinpoint infection before mediastinal widening would be visible on CT," says Bridwell.

Just how did the drug get FDA approval so quickly? Bridwell credits a crack team of scientific and administrative professionals for ushering the

protocol through the process. The WRAMC Human Research Review Committee granted preliminary approval. Then Palatin teamed up with WRAMC under an agreement through the Henry M. Jackson Foundation for the Advancement of Military Medicine to conduct the clinical trials.

The team was ready to begin the trials by the second week of November, but has been unable to actually test the technique because no other patients have been diagnosed with inhalation anthrax. "Despite the fact that we have not produced any images of inhalation anthrax that can validate our protocol," says Bridwell, "this has been a substantial and proactive step in getting a promising technique to a point where it is ready when circumstances call for it."

## Camp Rhino or Bust

Afghanistan – out in the middle of nowhere, the view around us is bleak. Nothing but desert for miles. The last time it rained here was over four years ago. We are lucky to be here in the fall/winter timeframe because summers are hot! I keep asking myself, “How the heck did I ever end up here?”

My name is Cmdr. Bruce Baker, an anesthesiologist usually assigned to Camp Pendleton, Calif. I am USU class of 1986, and have another anesthesiologist colleague of mine, Lt. Cmdr. Mike Harrison ('91) with me. Lt. Joe Sliman ('99) is a flight surgeon on one of the ships out here with us.

Normally, 60 percent of my time is spent doing cases at NHCP, while the rest is spent serving directly with the Marine Corps. Suddenly, after Sept. 11, life in the U.S. and the Navy, especially, grew more intense. When I first heard of military plans to go into Afghanistan, I told my wife not to worry, “Afghanistan is a land-locked country, this is not a job for the Marines.” Boy, when I am wrong.

The Marines are running what is called split amphibious readiness group operations; conducting exercises a long distance from their embarkation ship – in this case the USS Peleliu. They have set up a forward operating base (FOB) over 400 miles from the fleet. Camp Rhino is located deep in Afghanistan, near some of the last cities to still be under Taliban control. We are at the far end of the supply chain with food, water and other amenities in short supply. No bath this month, a situation with which as a boy I might have been elated, but now I wish I had brought more baby wipes.

A Marine group would usually operate closer to its Casualty and Receiving Treatment Ship (CRTS) and we might have a medical team such as a Shock Trauma Platoon (STP), on the shore. This echelon one care might be positioned at a Battalion Aid Station or Beach Evacuation Station, but this time we are so far from available medical

care that two teams of surgical specialists have been formed and brought out to assist. We are bringing echelon two care to the FOB.

A surgical capability was brought together for both the 15<sup>th</sup> and 26<sup>th</sup> Marine Expeditionary Units serving here. We combined part of the two teams to give us two surgeons, two anesthesiologists, two ER physicians, three nurses, an independent duty corpsman and two OR techs. This level of specialized medical skills is evidence that this mission may not be just a par three. This truly is war and casualties must be expected and prepared for.

Here the medical mission is damage control surgery, to help treat and stabilize patients in the field, stopping hemorrhage and contamination. We would do temporizing surgery to get the patient back to echelon three facilities where more definitive surgery can be performed. Patients wounded on the battlefield can be divided into four main groups. The majority will receive wounds from shrapnel, projectiles or blast injuries to the extremities, and will need either delayed surgery or minimal surgery. A relatively small proportion of patients will die almost immediately from their wounds, usually from direct damage to the central nervous system or major blood vessels. A small percentage will need immediate surgery or other life-sustaining procedures to survive. It is that group that we mainly are here to treat, although we will take all comers. Far from surgical care, this forward surgical capability is needed. Ideally, we would like to receive casualties within one hour of



wounding, the so-called “golden hour” for trauma care. Our goal is to initiate treatment, stop hemorrhage, treat immediate life or limb threatening conditions such as hemo- or pneumothorax, and temporize vascular injuries with the placement of shunts, among other treatments, to stabilize the patient for transfer to a place that can give definitive care.

After setting up a rudimentary surgical capability while awaiting our equipment, we made a tactical decision to have the other surgeon and anesthesiologist join our group to give us increased surgical capabilities, in case of a mass casualty situation. Two surgical teams would allow for an even more forward surgical presence should the need arise. Once the equipment arrived, we set up two full operating tables in a Drash-five tent and then conducted a mass casualty drill. The next morning, we were notified that approximately 40 patients were inbound and would need treatment. In coordination with other assets in the theatre, we helped treat the casualties, operating on one and treating about twenty others at our facility. The patients were then sent to the CRTS or other facilities once they were stabilized. We have also been involved in the treatment of pilots from a helicopter that went down during night operations; luckily injuries were minimal. And ever since, we have been standing by, ready to assist.

The landscape may be bleak, but the Marine Corps and Navy Medicine are both shining brightly during the war on terrorism. The work is important, for the most part exciting, and probably a first for Navy Medicine, being this far away from the sea.



## Martin Silverstein: Devoting a Lifetime to the Study of Disasters

Dr. Martin Silverstein is a man with vision. His lifelong interests and studies in disaster medicine have led to significant, worldwide technological advances and a greater understanding of the prevention and mitigation of disastrous events. His expertise in the field has also led to his academic collaboration with USU and efforts to establish at USU an institute for the study of disaster.

Almost 60 years ago, as our nation was at war, Marty Silverstein enlisted as an Army medic. His first assignments were at stateside general hospitals where casualties from the North African campaign were sent for care, and sailors whose ship had been attacked by a German U-boat off the New Jersey coast were brought ashore. It was Silverstein's first exposure to disaster, and it was also then he first realized the need for mass casualty planning.

Silverstein had contemplated medical school after demobilization, with plans for a career in surgical physiology and trauma surgery, and thus attended New York Medical College, finishing in 1948 with a commission in the U.S. Naval Reserve. His surgical residencies were spent in teaching hospitals throughout New York City slums, where he viewed the steady stream of casualties as “endemic disasters,” requiring well-designed systems for emergency transport and care. His studies of problems in the deployment of emergency responders and the flow of casualties to medical facilities resulted in a lifelong rapport and respect for firefighters and police.

During the 1960s, the concept of field medical care had not yet been transferred from the military to urban air and ground ambulance systems, except in a few cities. He grew interested in the aspects of technology that could be adapted to civilian emergency medical systems. Years later, he helped design and prove the feasibility of transoceanic medical consultation and as a founding member of the Washington-based International Council on Computer Communications, he developed contacts

with international experts and was charged with activities combining disaster studies and computer technologies.

Silverstein joined the faculty of the University of Arizona College of Medicine in Tucson in 1974, where he developed his own medical electronics lab. He went on to establish a local EMS system, including both training and communications, continuing his interest in the management of mass casualty situations and their similarities with military events.

President Reagan appointed Silverstein to his transition team for the Federal Emergency Management Agency and related activities of the new administration in 1980, expanding his studies in disasters and terrorism to the international realm. He lectured at the University of Madras, India, in 1984, predicting an industrial disaster within six months. Shortly thereafter, Bhopal's Union Carbide disaster occurred, gaining him the confidence of the country's political and academic leaders. The same year, during a keynote address to France's catastrophe society, Silverstein projected that globalization would have great significance for future disasters and their management. His concepts warned explicitly of the dangers inherent in the ability to network and identify strategic targets, a system apparently used by the terrorists of Sept. 11, 2001.

Time spent studying and analyzing disasters as a visiting scholar and senior fellow at Georgetown's Center for Strategic and International Studies opened doors for Silverstein throughout many levels of government and within global health organizations. He helped introduce the war game format to solve disaster management problems, including terrorism. At the same time, he was honored by a clinical professorship at USU, where he enthusiastically joined and has continued to be actively involved in conferences, teaching, and other activities over the past 20 years.

Silverstein's studies proved that disasters are not sudden, unpredictable events for which no mitigation is possible and management can only be ad hoc. He contends that preparation for and prevention of biological terrorism must include forging links among the police, fire and emergency medical services, as well as with environmental agencies, public health professionals, the intelligence

community and the military. Information sharing, risk education, shared resources and joint training are all ties he says must be strengthened between government and industry. Continually building response and investigative skills of counter-disaster personnel is a vital ingredient “in countering the threat posed by terrorists willing to ‘up the ante’ and embrace chemical or biological agents as mechanisms of terror,” according to Silverstein. He continues to use technology to help predict and manage disasters, and develop effective communication networks to direct and manage patient logistics. His approach to disaster management has transformed the field from anecdotal, personal reports to the level of an applied science.

Silverstein's positions, honors and fellowships are extensive and impressive. Over the past three decades, he has worked with NSF, NASA, RCA, the Department of State, the World Association for Disaster and Emergency Medicine, NIMH, the U.S. Congress, several Presidential commissions, and an array of local government agencies. He is currently writing a book that takes up where his 1992 publication, “Disasters: Your Right to Survive,” left off. After attempting to analyze disasters and present their study as an applied science in the first volume, the current book emphasizes periodicity, chaos theory and the multiple consequences of poor policy-making. As he contends, the management of disasters has often itself stimulated additional ones, a phenomenon he calls “convergence.”

Early on, Silverstein recognized that his interests matched USU's mission. Thanks to Dr. Norman Rich, Dr. Charles Hufnagel and Vice Admiral Michael Cowan, he came to USU as an adjunct professor of surgery, working closely with Rich and others to help establish a disaster study institute. Silverstein believes USU is a fitting location for such an institute and has included the university as a major beneficiary of the estate to be left by him and his wife, Mabelle, an obstetrician-gynecologist.



*If you would like to include a gift to USU in your estate plans, please contact Helaine Ahern, Assistant V.P. for Development, at (301) 295-3094 or hahern@usuhs.mil.*

## First Program Project Grant Awarded to USU

In September 2001, the University received its first Program Project Grant from the National Institutes of Health. The grant was made to Dr. Gerald Quinnan, Department of Preventive Medicine and Biometrics, and a team of researchers developing vaccines for HIV.

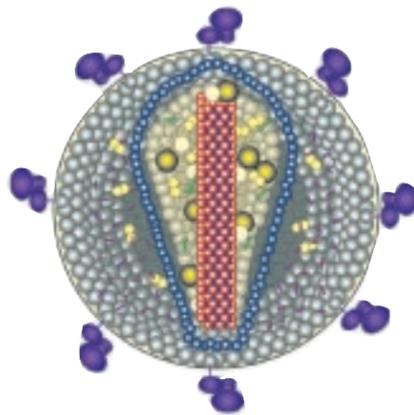


The principal research focus of the Program Project is the development of a vaccination regimen that results in broadly effective protection against HIV-1 infection through the induction of potent neutralizing antibody and cytotoxic T lymphocyte (CTL) responses. The results of these studies could greatly enhance efforts to develop a successful HIV vaccine.

Their work includes studies of an HIV-1 envelope and an HIV-1 neutralizing serum, both of which were obtained from a donor with broadly cross-reactive neutralizing antibodies. Their results indicate that neutralizing cross reactivity, which is dependent upon conformation (3D structure) of the envelope, can be modified by introduction of specific sequences into a region of the envelope. By comparing mutant forms of this envelope in alpha virus replicon immunogenicity studies,

Quinnan hopes to determine the precise role of specific envelope sequences in determining neutralizing cross reactivity. If these studies show protection against challenge infection, they could lead to clinical trials.

The Principal Investigators for the basic research components are Quinnan, Dr. Christopher Broder, and Dr. Xiao-Fang Yu, Johns Hopkins University. Studies are also conducted at Southern Research Institute, Frederick, Md. (Principal Investigator, Dr. Mark Lewis). A second core function is located at USU which focuses on preparation of candidate vaccine materials and other molecular biology technical support functions (Principal Investigator, Dr. Peng Fei Zhang). Important collaborators in the Program include a number of other scientists at USU and the Henry M. Jackson Foundation for the Advancement of Military Medicine, other U.S. universities, and Dr. Yiming Shao, director of the national HIV epidemiology program in Beijing, China. The Program Project is funded at approximately \$1.5 million per year for three years, with the potential for two additional years after NIH administrative review.



## Space Bones

USU Department of Medicine professor Dr. Jay Shapiro is team leader for bone studies at the National Space Biomedical Research Institute. He is searching for clues to the cause of bone loss or osteoporosis in astronauts after returning from space travel. Shapiro says the condition has become so prevalent that NASA considers osteoporosis an inherent risk for those participating in the space program.

Shapiro is studying spinal cord injury patients at the National Rehabilitation Hospital in Washington, D.C. "Once you lose muscle function, you lose bone," he says. This is also true in space for astronauts because their muscles no longer have to function against gravity.

Shapiro is studying zoledronate, a newly approved and powerful bisphosphonate, which slows the rate of bone absorption. He says, "Bisphosphonates inhibit the cycle of bone breakdown that occurs, allowing the bone-forming processes a little more breathing room." He believes zoledronate could help staunch astronauts' bone loss. The drugs appear to be safe and effective, but he would like to test them aboard future shuttle missions. "You never know how good they are until you fly them."

Researchers hope these findings will help them gain a better understanding of osteoporosis here on Earth as well, where at least 10 million Americans suffer from bone loss.

Shapiro also heads the Interdepartmental Center for Space Medicine at USU, which promotes education and research in this area.

## Center for Prostate Disease Research

Scientists with the Center for Prostate Disease Research (CPDR) continue to study the role of male hormones (androgens) in prostate cancer using the state-of-the-art high throughput gene expression technologies of SAGE and Gene Chips. These studies have the potential to define new biomarkers and therapeutic targets for hormone refractory disease, which is often a fatal form of this disease.

CPDR scientists, headed by Shiv Srivastava, Ph.D., completed their first study on building the comprehensive repertoire of androgen-regulated genes in prostate cancer cells by analyzing about 20,000 transcripts using a combination of high throughput gene expression technology and bioinformatics.

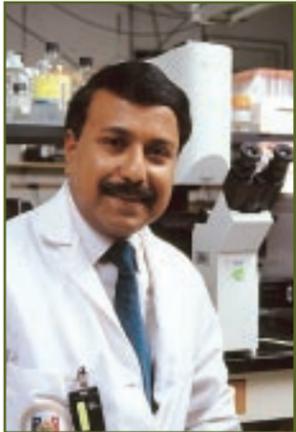
This study has been published in the *International Journal of Cancer* and the dataset is publicly available through the NIH SAGE map site. A patent application has also been filed on this discovery. Another publication on this topic is anticipated later this year in *Cancer Research*.

CPDR's prostate cancer gene discovery efforts were highlighted in a recent report describing a prostate-specific G-protein coupled receptor in *Cancer Alert*. Genes like this have potential for developing new strategies for prostate cancer diagnosis and therapy.

CPDR was recently recommended for DoD funding to continue work on novel prostate-specific gene PSGR

through an Idea Development Award of \$400,000.

The CPDR is a collaboration with USU, the Walter Reed Army Medical Center, the Armed Forces Institute of Pathology, tri-service (Army, Navy, Air Force) medical centers and the Henry M. Jackson Foundation for the Advancement of Military Medicine. For more information on the CPDR, visit the Center's new Web site at [www.cpdr.org](http://www.cpdr.org).



## Recent Publications by USU Faculty

Robert J. Ursano, M.D., Chair, Dept. of Psychiatry. *New England Journal of Medicine*, January, 2002 346 (2) Editorial on Post-Traumatic Stress Disorder.

David S. Krantz, Ph.D., Chair and Professor, Dept. of Medical and Clinical Psychology. *Annual Review of Psychology*, 2002, no. 53 "Effects of Psychological and Social Factors on Organic Disease: A Critical Assessment of Research on Coronary Heart Disease."

Lt. Col. Wayne B. Jonas, MC, USA, Assistant Professor, Dept. of Family Medicine. *Applied Psychophysiological Biofeedback*, Sept. 2001, 26 (3) "Advising patients on the use of complementary and alternative medicine."

Thomas M. Seed, Research Biologist, AFRRI. *Radiation Research*, Sept. 2001, 156 (3) "In vivo radioprotection by 5-androstenediol: stimulation of the innate immune system."

Joseph T. McCabe, Ph.D., Professor, Dept. of Anatomy, Physiology and Genetics. *Brain Research Bulletin*, June 2001, 55 (3) "Alterations of AP-1 and CREB protein DNA binding in rat supraoptic and paraventricular nuclei by acute and repeated hyperosmotic stress."

William J. Kop, Ph.D., Assistant Professor, and David S. Krantz, Ph.D., Chair and Professor, Dept. of Medical and Clinical Psychology. *Journal of American College of Cardiology*, Sept. 2001, 38 (3) "Changes in heart rate and heart rate variability before ambulatory ischemic events (1)."

Jesus Colino, Post Doctorate Fellow, Dept. of Pathology. *The Journal of Infectious Diseases*, December 2001, 184 (12) "Analysis of the Ontogeny of the Murine Humoral Response to Neisseria meningitidis B Capsular Polysaccharide Reveals Levels of

Complexity Relevant to Vaccine Development."

Cmdr. Aileen M. Marty, MC, USN, Dept. of Pathology, served as guest editor for the September issue of *Clinics of Laboratory Medicine*. The issue, which focused on the laboratory aspects of biowarfare, serves as a reference for emerging infectious diseases, pathology, immunology and molecular biology. USU faculty contributed 11 articles to the publication. Writers included: Richard M. Conran, M.D., J.D., Ph.D., Philip M. Grimley, M.D., James A. Madsen, M.D., and Michael Daly, Ph.D. Adjunct Professors included: Mark G. Kortepeter, M.D., Peter B. Jahrling, Ph.D., Edward M. Eitzen, Jr., M.D., Franziska B. Grieder, Ph.D., Erik A. Henchal, Ph.D. and Randall C. Culpepper, M.D., Ph.D. Students included: Julie A. Pavlin, M.D., M.P.H., Keith E. Steele, D.V.M. and Bruce A. Schoneboom.

## Emerging Zoonotic Agents

Researchers in the microbiology department recently published a paper in *Virology* (November, 2001), addressing several new potential health threats. They are investigating Hendra virus and Nipah virus, which are newly emerging and highly lethal zoonotic agents. Both viruses are related to the Morbilliviruses, of which Human Measles virus is a member, yet they are uniquely distinct from all other known Paramyxoviruses. Both viruses are classified as zoonotic Biosafety Level 4 agents.



Graduate student Katherine Bossart and Dr. Christopher Broder

Hendra virus emerged in 1994, and was isolated from fatal cases of respiratory disease in horses and humans. Later in 1998-1999, an outbreak of severe encephalitis in people with close contact exposure to pigs in Malaysia and Singapore occurred. In all, more than 276 cases of encephalitis, including 106 deaths, had been reported, a near 40% fatality rate upon infection.

Pigs appeared to be an amplifier of the Nipah virus, and these viruses can also be economically devastating: more than 1.2 million pigs were slaughtered to stem the Nipah virus outbreak. They appear to infect through the respiratory system initially and are capable of causing viremia. The potential to be weaponized and used as biological weapon agents is clearly possible. They may be amplified in cell culture or embryonated chicken eggs, and could be used as a terror weapon targeting humans as well as livestock, the latter which would serve as virus amplifiers. Recent evidence has also indicated that nosocomial transmissibility of



Flying Foxes, large Australian fruit bats, are believed to be the reservoirs in nature for Nipah virus and Hendra virus.

Nipah virus from patients with encephalitis to healthcare workers is also possible.

There are no existing antiviral therapies effective against these viruses, and the only therapies in existence to any viruses in the Paramyxovirus family are live-attenuated vaccines. Using recombinant Poxviruses, we have developed gene expression systems to study the attachment and entry mechanisms of these viruses, and are developing novel reagents which may serve as potential vaccines as well as specifically blocking virus infection and spread.

## Henry M. Jackson Foundation Fellowship Program



HJF selected two outstanding USU graduate students during 2001 to receive the Henry M. Jackson Foundation Fellowship Award. This program, established in 1998, provides stipend and travel support for a USU graduate student during the fifth year of his/her study. Sara B. Newman is a graduate student in the Department of Preventive Medicine and Biometrics. She plans to use her background in epidemiology and the behavioral sciences to design programs for the prevention of sexually transmitted infections in at-risk populations. Kimberly Lynn Kalupa is a Graduate Fellow in Medical and Clinical Psychology. Her research focuses on the etiology and treatment of obesity in women.



## Students Study Cardiovascular Disease



USU third year students, 2nd Lts. Mark Crago and Timothy Welch, MS, USAR are working with USU class of '86 alumnus and physiology department faculty member Dr. Lisa Schwartz on a new approach to the treatment of cardiovascular disease. The students have been on the research team since they entered USU. The purpose of the research is to study the heart's response to hypoxia — the lack of oxygen to the heart during a heart attack. Hypoxia is a significant contributor to the cause of death. The research team is working on a way to precondition the heart to protect itself from heart attacks, thereby increasing a patient's chance of survival. Findings have been submitted for publication in *Circulation Research*, an American Heart Association journal.



## 81

Dr. Connie Mariano retired from the Navy in June and is now on staff at the Mayo Clinic in Scottsdale, Ariz. Mariano was the first USU alumnus to reach the rank of flag officer.

USU's second flag officer, Brig. Gen. Charles "Bill" Fox, MC, USA, is now triple-hatted as the corps surgeon for the XVIII Airborne Corps, Commander of the 44th Medical Command, and director of health services at Ft. Bragg, N.C.

## 82

Col. Carole Ortenzo changed jobs in June, moving from chief, department of surgery at Martin Army Community Hospital, Ft. Benning, Ga., to Deputy Commander for Clinical Services at MACH, previously held by fellow classmate, Col. Karl Kerchief. Kerchief is now the Commander of the Reynolds Army Community Hospital at Ft. Sill, Okla.



Members of Class of '82  
\* at GME selection board luncheon

## 83

Col. Bradley Harper, MC, USA, is now the chief of pathology and acting deputy commander for clinical services at Irwin Army Community Hospital, Ft. Riley, Kan. Harper recently transferred from Ft. Lee, Va., where he served as commander of Kenner Army Community Hospital.



Members of Class of '84 \*

## 85

Capt. Phil Coyne, USPHS, is now the associate director for regulatory affairs in the division of experimental therapeutics at the Walter Reed Army Institute of Research in Silver Spring, Md.

Cmdr. Eric McDonald, MC, USN, left his position as division surgeon with the 1st Marine Division at Camp Pendleton, Calif., for an assignment in the Emergency medicine department at the Naval Medical Center in San Diego.

Cmdr. Michael Maddox, MC, USN, is currently serving as the division surgeon for the 3rd Marine Division in Okinawa, Japan. In June, he will transfer to the otolaryngology department at the U.S. Naval Hospital in Okinawa.

## 86

Dr. Peter Cardinal left the Army and is now the vice president of medical affairs at Gettysburg Hospital in Gettysburg, Pa.

Cmdr. Bruce Baker, MC, USN, an anesthesiologist, is now on assignment at Forward Operational Base, Camp Rhino, in Afghanistan, providing medical support for U.S. troops in the region. Baker reports he helps operate a "Shock Trauma Platoon" and a two-bed surgical suite.

Dept. of Microbiology alumnus, Dr. James Remenick, recently joined the staff of Heller Ehrman White &

McAuliffe LLP. Remenick is employed in the firm's Montgomery County, Md., office where he will be part of its Life Sciences National Practice Group as well as its Patents & Trademarks National Practice Group.

## 89

Dr. Michelle Kingsbury is currently a third-year resident at Portsmouth Family Medicine through Eastern Virginia Medical School. She changed her career from Obstetrics and Gynecology to Family Practice. Kingsbury is now the chief resident for the program. She is married and has a son, age five.

Dr. Carol (Silvia) Weisse, medical psychology doctor of philosophy program alumna is an associate professor in the psychology department at Union College in Schenectady, N.Y. Weisse also serves as the director of health profession programs for Union College and advises students who are interested in careers in medicine. Currently, her research focus is on pain management and she recently published a paper in the *Journal of General*



Members of Class of '86 \*

*Internal Medicine*, looking at the role of gender and race in decisions about pain management. Next summer Weisse will take 20 Union College students to study national health care systems in England, the Netherlands and Hungary. Weisse and her husband, Steve, have two children, Alexandra, ten, and Adam, eight.

## 90

Bruce Adams was promoted to Lt. Col., MC, USA, in October, and is currently serving as the chief resident, department of emergency medicine, at the Medical College of Georgia in Augusta. Adams was invited recently to speak to USU students in a military medicine department course on his experiences in Somalia.

## 91

Maj. Paul Pasquina, MC, USA, has been named program director for the Physical Medicine and Rehabilitation residency at Walter Reed Army Medical Center (WRAMC). Pasquina recently led the department through its residency review by the ACGME. Formal results of the review will be released later this year.

Lt. Cmdr. Michael Harrison, MC, USN, is serving alongside class of '86 alumnus, Bruce Baker, at the Forward Operating Base, Camp Rhino, in Afghanistan. Harrison is an anesthesiologist.

## 92

Lt. Col. Nelson Hager, MC, USA, left his assignment at Madigan Army Medical Center in Tacoma, Wash., to take over the reins as chief of the Physical Medicine and Rehabilitation service at WRAMC recently.

Lt. Cmdr. Michael Roundy, MC, USN, is now serving as a psychiatrist at the U.S. Naval Hospital in Roosevelt Roads, Puerto Rico.

Lt. Col. Mark Koeniger, USAF, MC, was inadvertently omitted from the list of USU alumni who have received the Malcolm Grow Award for Air Force Flight Surgeon of the Year (USU Quarterly, Autumn 2001, pg. 22). Koeniger won the award while assigned to the 37th Airlift Squadron at Ramstein AB, Germany, in 1998. Following an assignment to Japan, Koeniger has returned to Ramstein and is now the commander of the 86th Aeromedical Squadron.

Continuing the trend of USU grads in operational leadership positions at Ft. Bragg, N.C., Lt. Col. Erin Edgar, MC, USA ('92), recently

assumed the role of division surgeon for the 82nd Airborne Division. He replaced Lt. Col. Doug Liening ('85), who replaced then-Lt. Col. John Powell ('87), who replaced Lt. Col. Alan Januszewicz ('86). Doug Liening has moved over to serve as deputy corps surgeon for the 18th Airborne Corps under Brig. Gen. Bill Fox ('81). Col. Rhonda Cornum ('86) is the commander of the 28th Combat Support Hospital, Col. Rocky Farr ('83) is the command surgeon for the U.S. Army Special Operations Command, and Col. Kevin Keenan ('81) is the dean of the Joint Special Ops Medical Training Center of the U.S. Army JFK Special Warfare Center and School, replacing Col. Cliff Cloonan ('83). Lt. Col. Edgar has been twice promoted below zone.

## 94

Lt. Cmdr. Staci (Valenzuela) Kelley and husband, Robert, recently welcomed the birth of their second daughter, Tara Savannah. Her sister, Rowan Dare, is just shy of

two years old. Kelley is the head of the inpatient mental health division of the Naval Hospital, Great Lakes, Ill.

## 97

MPH program alumnus, Maj. Daniel Isenberger, MC, USA, is enrolled in a cardiology fellowship program at WRAMC.

## 98

Lt. Cmdr. Keith Cook, USPHS, a graduate of the Master of Public Health program, recently transferred to Anchorage, Alaska, where he serves as the environmental control officer for the Alaska Native Tribal Health Consortium.

Maj. Bridget Larew, USAF, NC, is the chief of primary care at the DiLorenzo Tricare Health Clinic in the Pentagon. Larew is a graduate of the family nurse practitioner program of the Graduate School of Nursing at USU.

## 99

Medical Psychology Ph.D. graduate, Steven Berkowitz, works as the assistant director in the Cooperative Studies

Program of the Department of Veterans Affairs in Wash., D.C.

GSN Family Nurse Practitioner program alumna Capt. Heather Moledor recently married, changing her name to Johnson. She is now assigned to the family practice clinic at the 86th Medical Group, Ramstein AB, Germany.

## 00

Army MPH graduates Capt. Ken Lopez and Capt. Rebecca Holt are both assigned to the veterinary medicine division at the U.S. Army Medical Research Institute of Infectious Diseases, Ft. Detrick, Frederick, Md. Holland is the officer-in-charge of the large animal research farm there. Their classmate, Maj. Dennis Kilian, is an environmental science and engineering staff officer in the Proponency Office for Preventive Medicine, National Capital Region, in the Office of the Army Surgeon General, Falls Church, Va.

## In Memoriam

### Yvonne M. Andejaski 1957 - 2001

Lt. Col. Yvonne Andejaski, MC, USA (ret.), lost her seven-year battle with breast cancer in early November.

Yvonne graduated from USU in 1983 and subsequently completed a residency in radiation oncology at the University of California at San Francisco - the first military physician ever to enter the program. She was board certified in 1987 and was involved in patient care and research, her efforts designed to enhance oncology professionals' education and understanding of the psychosocial, spiritual, economic and quality of life issues that impact the lives of cancer survivors.

Yvonne served previously as acting chief of radiation oncology at NNMC and chief of radiation oncology at WRAMC, as well the Army Surgeon General's radiation oncology consultant. In 1993, she served as a staff officer for a congressionally-directed \$240 million breast cancer research program run by the U.S. Army Medical Research and Materiel Command. The following year, she became program manager.

In 1996, she began serving as one of three Army representatives to DoD's \$25 million Breast Cancer Initiative, which developed an investment strategy to support programs for increasing access to care and breast cancer education programs. In 1998, she co-designed and co-managed the development of DoD breast cancer treatment guidelines using a tri-service, multi-specialty panel of oncologic, surgical, and primary care

and psycho-social clinicians, as well as three breast cancer survivors.

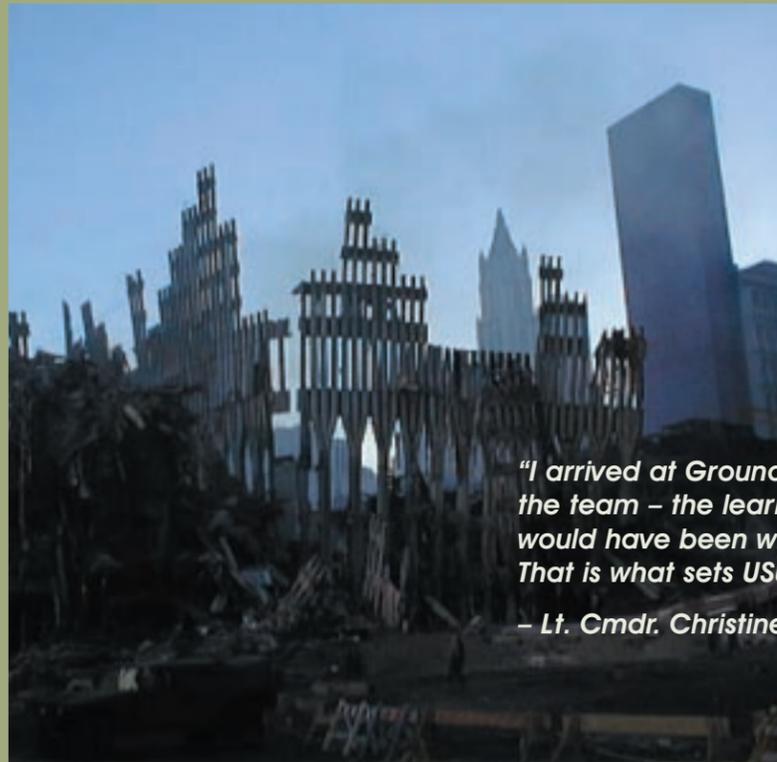
At WRAMC, Yvonne led the development of a "breast cancer clinic without walls," facilitating the many consultations that improve the care that newly diagnosed cancer patients receive.

Yvonne was diagnosed with breast cancer in 1994. She selflessly continued to work throughout her ordeal, looking beyond her own situation to help the greater good.

In the spring of this year, Yvonne retired from the Army as a lieutenant colonel and went to work at the National Cancer Institute. During a retirement party in her honor, Dr. Lee Poth presented Yvonne with the USU Medallion, on behalf of the university, for her significant contributions to research, medicine, the military and to USU.

If you would like to help advance USU's "commitment to excellence in military medicine and public health during peace and war," please contact Helaine Ahern, Assistant V.P. for Development, at (301) 295-3094 or hahern@usuhs.mil. Thank you for your support.





*"I arrived at Ground Zero as a productive member of the team – the learning curve was not as steep as it would have been without the USU curriculum..... That is what sets USU apart."*

*– Lt. Cmdr. Christine Casey, USPHS, World Trade Center Clinic*

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