

UNIFORMED SERVICES UNIVERSITY

Center for the Study of Traumatic Stress 2013 Annual Report



THE NEXT QUARTER CENTURY



The Next Quarter Century

The Center for the Study of Traumatic Stress entered its second quarter century of service to our nation in 2013. The Center's mission is to advance scientific and academic knowledge, interventions, educational resources and outreach to mitigate the impact of trauma from exposure to war, disasters, terrorism, community violence and public health threats. Our research in neuroscience and the neurobiology of stress is dedicated to finding effective interventions for a number of health issues that are of special interest to the military such as posttraumatic stress disorder (PTSD), mild traumatic brain injury (mTBI) and suicide. Findings from many of our groundbreaking studies will have an impact on individual, family and community resilience in the face of traumatic events into the next quarter century. The Center's scientists, educators and clinicians lead the nation in trauma-informed care, and rapidly moving findings from bench to bedside and from war to disaster.



An American flag flies above debris in Moore, Okla., May 21, 2013. Members of the Oklahoma National Guard worked to help the city, which suffered severe damage during a tornado that struck May 20, 2013. The guardsmen are members of the 63rd Civil Support Team. U.S. Army photo by Sgt. 1st Class Kendall James.

CONTENTS

From the Director of CSTS	1
An Interview with Dr. Carol S. Fullerton	3
Military Psychiatry	5
Child and Family Program	12
Disaster Psychiatry and Disaster Behavioral Health	15
Public Education Outreach and Resources	17
Presentations, Conferences and Trainings	18
2013 Funded Grants	20
Publications	21
CSTS Directors, Scientists, and Scientific Advisory Board	24

From the Director of CSTS

Dear Center Colleagues and Friends,

The Center for the Study of Traumatic Stress (CSTS) entered its second quarter century of service to our nation in 2013. Our mission — to advance scientific and academic knowledge, interventions,



educational resources and outreach to mitigate the impact of trauma from exposure to war, disasters, terrorism, community violence and public health threats — continues to be essential to the Department of Defense and the nation.

Center scientists, educators and clinicians continue to bring scholarly and research oriented problem solving to the mental and behavioral health problems of those exposed to war, disaster and traumatic events.

Our activities in 2013 highlight our unique contributions in military and disaster psychiatry, two separate yet interrelated fields, which our Center has helped define and advance. The bridging of these disciplines strengthened our response to the September 16th Washington Navy Yard Shooting. Center Scientists, Navy Commander Patcho Santi-



Memorial service to honor victims of the Washington Navy Yard shootings.

ago, led a team from Walter Reed National Military Medical Center (WRNMMC) to support the Special Psychiatric Rapid Intervention Team (SPRINT) that provided Psychological First Aid to the Sailors and Navy civilians working aboard the Navy Yard, U.S. Public Health Service CDR Josh Morganstein, M.D., RADM (Ret.) Brian Flynn, Ed.D., and LCDR Jennifer Bornemann provided ongoing expert consultation to local officials and DOD personnel involved in the disaster response. The CSTS response was featured in the APA's Psychiatric News Alert titled, "Mental Health Response Quickly Follows Navy Yard Shooting." CSTS also distributed customized, just-in-time fact sheets to over 2,000 government and private sector stakeholders on diverse topics including "leadership in the face of workplace tragedy", "stress management" and "managing a workplace after a disaster".

2013 also saw two natural disasters, domestic and international, and a terrorist event that engaged our Center's expertise. We provided educational outreach, just-in-time education and consultation to community leaders in the wake of the Moore, Oklahoma tornado, the Boston Marathon bombings and Typhoon Haiyan. The outreach included Army, Air Force and Navy Psychiatry consultants and Navy mental health leadership, and is described in more detail in the Military Psychiatry and Disaster Psychiatry and Behavioral Health sections.

The Center is also engaged in groundbreaking scientific studies whose findings will inform the next quarter century. The Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS), the largest study of mental health risk and resilience ever conducted among military personnel, is increasing our knowledge of the risks and protective factors that underlie vulnerability and resilience in the face of traumatic exposure for Service members who have and will serve our nation for years to come. In its fourth year, Army STARRS has analyzed more than a billion data points in existing Army and DOD records for more than 1.6 million past Active Duty

soldiers. To date, eight papers have been published, three papers were accepted for publication, four papers were submitted and are under review for publication, and thirty additional papers are in various stages of development.

The Center's research in neuroscience and the neurobiology of stress is dedicated to finding effective interventions for a number of health issues of special interest to the military such as posttraumatic stress disorder (PTSD), mild traumatic brain injury (mTBI) and suicide. Center scientists span from bench to bedside and their findings help inform our nation's policy around the impact of traumatic exposure. COL David Benedek, M.D., Associate Director, Consultation and Education, participated in the White House Office of Science and Technology Policy's discussion on the research action plan for a Presidential Executive Order on "Improving Access to Mental Health Services for Veterans, Service Members, and Military Families". The Center held a very successful 8th Annual Amygdala, Stress and PTSD Conference to bring basic science knowledge and clinical care knowledge together.

Our Child and Family Program (CFP) is a voice to the nation in bringing attention to a large population of U.S. Service members and their families who have been and will continue to be affected for years to come by serious combat injuries or military parental death. A January article in the *New York Times*, "A Soldier's Requiem, Never Fading Away", addressed these issues and cited the Center's in-



U.S. troops assist victims of Typhoon Haiyan.

volvement in The National Military Family Bereavement Study, a five-year project begun in 2011 under the leadership of Dr. Stephen Cozza, Associate Director of the Center, who heads up our Child and Family Program.

Disaster behavioral health is another area in which the Center provides leadership for the nation. Center Associate Director, Brian Flynn, Ed.D., an expert in behavioral health public policy and systems, represented the Center as a member of the Institute of Medicine's Committee on Crisis Standards of Care: A Toolkit for Indicators and Triggers. This committee is addressing issues such as 'altered standards of care' in events that overwhelm the resources of the health system, a significant issue in disaster behavioral health moving forward.

Looking ahead, we continue to engage in the important task of transmitting our Center's unique knowledge and experience in trauma research, education, consultation and training throughout the nation and in particular to our younger colleagues. Dr. Carol Fullerton, CSTS Scientific Director, addresses this important role of the Center in a personal interview on page 3.

As Director of our Center since its establishment in 1987, I look forward to sharing with you on the following pages the many contributions that we are making to enhance psychological health, recovery and prevention of the negative consequences of trauma on an individual, family, community and national level in both our military and civilian populations. I am proud of our Center scientists and our Center's work that has assisted the Department of Defense in leading the nation in trauma-informed care, and rapidly moving findings from bench to bedside and from war to disaster. To our many colleagues and friends who have collaborated with us and who have supported our work, we wish to thank you.

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

An Interview with Dr. Carol S. Fullerton



Carol S. Fullerton, Ph.D. is Research Professor in the Department of Psychiatry of Uniformed Services University and also serves a key role as the Scientific Director of the Center for the

Study of Traumatic Stress. Dr. Fullerton brings the unique perspective of having worked at the Center since its inception in 1987, and in 2013, along with Dr. Robert Ursano, the Center's Director, entered its second quarter century of trauma research, education, consultation and training.

This interview reflects Dr. Fullerton's unique perspective on the scientific process, the activities of the Center and her strong commitment to educating the next cohort of Center scientists who will carry the work forward into the future.

In addition to the many studies in which you are presently engaged, what is most meaningful to you at this stage of your career?

"Training and working with the Center's junior scientists. It's about moving the field ahead. Without transferring skills and knowledge, the field of trauma research will not advance. I view my role as providing the 'scientific glue' between the current and future generation of scientists."

You have been with the Center since its inception in 1987. Can you share some background about this period and its implications for your work today?

"In my first conversation with Bob Ursano, he asked whether I could handle being deployed to the site of a mass casualty disaster involving military personnel, with the mission to gain entrée and establish a research collaboration. My prior work conducting research on the adolescent units at Chestnut Lodge Psychiatric Hospital involved gaining entrée into a difficult setting and establishing a research

program. So I responded, "I think I can do it!" I learned early on that what was most important was establishing collaborations whether in a psychiatric setting, the site of a plane crash, or a community devastated by an earthquake or hurricane.

I have participated in a number of such missions. I now take a leadership role training others to gain entrée into disaster sites and establish ongoing research collaborations. This work enables us to better understand the immediate and longer-term responses of individuals and communities to trauma and disasters. We have also conducted some of the first studies of spouse and community support for disaster workers.

I understand that Harry Holloway championed bringing you into the Department because of your prior background and training.

"That is correct. Dr. Holloway felt my training in human development would be an asset. He believed that people who study human development are 'multi variable' people. According to Harry, 'they approach a problem from multiple domains'.



Dr. Carol S. Fullerton, Scientific Director of the Center for the Study of Traumatic Stress, discusses a research project with Drs. Holly Mash and Quinn Briggs.

Without transferring skills and knowledge, the field of trauma research will not advance. I view my role as providing the ‘scientific glue’ between the current and future generation of scientists.

How has the multi variable approach benefitted your scientific research?

The Center has been involved in nearly every major disaster in our nation over the past 25 years. We have studied many disaster populations from disaster workers and spouses, Soldiers and families, postal workers, public health workers and the homeless population in Washington, D.C. following the DC sniper attacks, as well as others. We have worked extensively with Soldiers returning from deployment and their spouses. In all our work we examine multiple factors affecting responses to trauma and disasters. Why do some people develop posttraumatic distress while others become more resilient following such experiences? We examine multiple factors that affect recovery. These questions are reflected in every aspect of the research from designing the instruments to evaluating the data and determining new directions for future research. Another important aspect of our work is that we have taken a multilevel approach — examining both individual as well as community level factors.



Typhoon Haiyan in the Philippines.

Are these the items that are taught and passed on to the next generation of trauma scientists?

“Yes, basically, you train their minds. Learning to think as a researcher is a very different process than learning content. In the former, you learn to put ideas together in new and innovative ways. A true scientific discovery is often the result of the coming together of seemingly disparate ideas, which when examined together become greater than simply the sum of the two. As scientists we want to understand the mechanisms that underlie this relationship. In my years of integrating into the disaster settings, developing surveys, collecting data, analyzing data to writing it up, I’ve developed a sense of ‘context’ — somewhat intangible yet teachable.”

How would you describe the Center’s role in transferring this scientific knowledge to those invested in doing trauma research?

There is a great line from the movie, *The Paper Chase*. Professor Kingsfield addresses his law students on the first day of class, “You teach yourselves the law, but I train your minds. You come in here with a skull full of mush; you leave thinking like a lawyer.”

A quarter century of research on trauma and disaster, with many studies conducted in the field, invariably leads to a mindset in which the science is informed by multiple factors and the unique experiences of the scientist. As we look ahead to the next quarter century, I believe our Center’s contributions will be reflected in the ‘mindset’ of those young scientists we have mentored.

The Center has been involved in nearly every major disaster in our nation over the past 25 years. We have studied many disaster populations from disaster workers and spouses, Soldiers and families, postal workers, public health workers and the homeless population in Washington, D.C. following the DC sniper attacks, as well as others.

Military Psychiatry

The ten-year war on terrorism has resulted in high rates of stress, posttraumatic stress disorder (PTSD), depression, suicide, co-morbid concussions, traumatic brain injuries, and other combat-related mental and behavioral health issues. These injuries, visible and invisible, have disrupted the lives of thousands of Service members, families and children who will bear the effects for years to come. Almost one million Service members or former Service members who served in Iraq or Afghanistan have been diagnosed with at least one psychiatric disorder and almost half of those members were diagnosed with multiple disorders according to a recent Institute of Medicine report.

The Center for the Study of Traumatic Stress, established in 1987 as part of the Department of

Psychiatry of the Uniformed Services University, has been and continues to be on the forefront of research, education, consultation and training in military psychiatry, which addresses the psychiatric, psychological and mental health issues that affect and occur within the military community (Service members, their families and children) including Active Duty, Guard and Reserve personnel and veterans.

The Center advances the field of military psychiatry through: 1) translational research in neuroscience and the neurobiology of stress to better understand the origins of and inform treatments for traumatic stress disorders; 2) education of USU medical students committed to service in our nation's Army, Air Force, Navy and Public Health

The Center advances the field of military psychiatry through:

1) translational research in neuroscience and the neurobiology of stress to better understand the origins of and inform treatments for traumatic stress disorders; 2) education of USU medical students committed to service in our nation's Army, Air Force, Navy and Public Health Service; 3) development and dissemination of educational resources on timely issues of military health and mental health to educate physicians, military and civilian, and healthcare providers engaged in military and trauma-informed care, and; 4) consultation with DOD leadership, government, academia, industry and the media to foster knowledge, educational and clinical resources, and outcomes for optimizing and sustaining military health and influencing military health policy.

UNIFORMED SERVICES UNIVERSITY
CENTER FOR THE STUDY OF TRAUMATIC STRESS

9th Annual Amygdala, Stress and PTSD Conference: Bench to Bedside

APRIL 22, 2014
Sanford Auditorium & Lobby, Building B
Uniformed Services University
Bethesda, MD

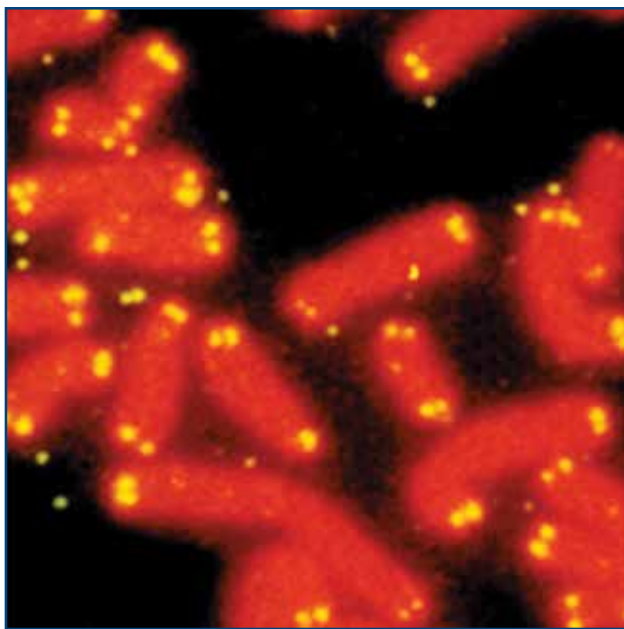
www.AmygdalaPTSDconference.org

SPONSORED BY:
The Center for the Study of Traumatic Stress (USU), Department of Psychiatry (USU), Neuroscience Program (USU), Department of Family Medicine (USU), and Department of Psychiatry (WRMMHC)

US USU WRMMHC

Service; 3) development and dissemination of educational resources on timely issues of military health and mental health to educate physicians, military and civilian, and healthcare providers engaged in military and trauma-informed care, and; 4) consultation with DOD leadership, government, academia, industry and the media to foster knowledge, educational and clinical resources, and outcomes for optimizing and sustaining military health and influencing military health policy. In 2013, the Center was actively involved in all of these four areas.

The Center's neuroscience research has resulted in the discovery of potential biomarkers for PTSD, suicide risk, and increased understanding of gene expression patterns that underlie biomarkers. These findings can ultimately be used to diagnose diseases promptly and accurately, to identify individuals at high-risk for certain diseases, and to follow the course of response to treatment. As new candidate biomarkers are identified, access to large collections of bio samples from persons exposed to trauma



[CSTS research found] that in Service members with PTSD exposed to six or more traumatic events, telomeres were significantly shorter than in age-matched controls, indicating that more traumatic events were associated with shorter telomeres in those with PTSD in a trauma dose-related manner.

(with and without PTSD or other disorders) will be important resources for scientists attempting to replicate and validate initial studies.

In 2013, Center neuroscientists studying PTSD in Soldiers from high operational tempo units made an important discovery about telomeres, the segment of repetitive nucleotide DNA that occurs at the ends of chromosomes and protects the chromosome from deterioration. Over time and with each cell division, the telomere ends become shorter, showing telomere length as an emerging marker of biological age that predicts incidence of age-related diseases. Center scientists found that Service members with PTSD had shorter telomeres than age-matched Service members without PTSD. A particularly striking finding was that in Service members with PTSD exposed to six or more traumatic events, telomeres were significantly shorter than in age-matched controls, indicating that more traumatic events were associated with shorter telomeres in PTSD in a trauma dose-related manner. The reduction in telomere length was greater in the PTSD subjects, aged 18-30, compared with age-matched controls than in older subjects. This suggested that the telomere was a target of stress, especially in younger aged subjects. These findings provided additional evidence of telomere shortening in PTSD, and demonstrated telomere length as a potential biomarker for risk of PTSD. Specific changes of telomere length among subjects with PTSD who had experienced traumatic events may depend, at least partially, on the degree or frequency of traumatic exposure.

The study (see Publication section, p. 22), which was published in *Molecular Psychiatry*, bridges a gap between basic science research and clinical practice with regard to aging and PTSD. As the adult veteran population ages the study is of increasing scientific and public interest. Regarding the Center's continued efforts to identify biomarkers for stress-related disorders and behaviors as well as markers for susceptibility and resilience, Center scientists extended their existing biomarker protocol to allow for collection of mid-deployment biospecimen and survey data from troops deployed to Afghanistan in 2013 and collected this data in-theater. By the summer of 2014, the Center will have collected data



on a population of activated National Guardsmen pre-, mid- and post-deployment and this data will represent a one-of-a kind repository for potential biomarker identification in deployed troops.

The Center also advanced its work in neuroscience and the neurobiology of stress through its continued oversight and leadership of the *National Capital Area Integrated Clinical Study Site*. Center Associate Director **COL David Benedek, M.D.** directs this established network of clinician-researchers at Walter Reed National Military Medical Center (WRNMMC), the D.C. Veterans Administration Hospital and the Armed Forces Retirement Home. The site is one of 10 such study sites across the nation, which participates in the INTRuST Consortium for Psychological Health and TBI. In 2013, the consortium completed data collection for several clinical trials of novel medication and psychotherapy treatment for PTSD and other combat-related disorders. Results of the Consortium's trial of high-dose Transcranial Magnetic Stimulation (TMS) for suicidal ideation and behavior in veterans—conducted at Walter Reed and the Charleston, SC Veterans Administration Hospital—are pending publication at the time of this report. There were also significant advances in another consortium study being conducted within the National Capital Area Integrated Clinical Study Site, *The Brain Indices of Risk for PTSD after Mild TBI*, a protocol that seeks to identify predictors of PTSD risk using brain-imaging technologies in persons with TBI. **Dr. Connie Duncan** and the Brain Indices team presented the study's initial findings to the Congressionally Directed

Medical Research Program, the U.S. Army Medical & Materiel Command, and to DOD officials. The data has shown significant delays in state-of-the-art electrophysiological measures of information processing following recent mild traumatic brain injury. Dr. Duncan presented her work at the 53rd Annual Conference of the Society for Psychophysiological Research in Florence, Italy.

Dr. Duncan was also appointed as the Site Principal Investigator at Fort Belvoir Community Hospital and will serve as Co-Investigator of the protocol for, *Evaluation of Military Service and Family Members for Post Concussive and Posttraumatic Stress Symptoms*, which aims to facilitate the recruitment, screening, and registry of Service members and individuals eligible for care in the DOD healthcare system.

Beyond its affiliation with the INTRuST Consortium, the Center also conducts social and epidemiologic studies to identify modifiable risk and resilience factors of Service members and their families. **Dr. James Naifeh** presented a poster at the Association for Psychological Science convention that reported on a study finding that low perceived social support from peers and low unit morale increase risk of PTSD in previously deployed Active Duty Soldiers, after controlling for demographic variables and level of combat exposure. The study demonstrates the importance of unit characteristics in post-deployment mental health, and it is an important step in beginning to identify risk factors that are modifiable within the existing structure and culture of the Army.

The *Army Study to Assess Risk and Resilience in Servicemembers* (Army STARRS) combines two

STARRS

Study to Assess Risk and Resilience in Servicemembers

Center research methodologies drawing upon epidemiology and neurobiology. Under Dr. Ursano's direction, the complex operations of Army STARRS are managed by Center Associate Director, **Dr. Robert Gifford** who serves as Army STARRS Senior Project Director; **Paul Hurwitz, MPH**, Senior Program Manager; and **Susan Moss, CPA**, Senior Financial Manager. Army STARRS is supported by many Center scientists, our team of Biostatisticians, and Center staff at all levels.



Army STARRS has collected about 77,000 tubes of blood from about 52,000 soldiers, and analyzed more than a billion existing Army and DOD records for more than 1.6 million past Active Duty soldiers.

This five-year project, which examines the mental health and resilience of Active Duty U.S. Army Soldiers, aims to identify modifiable risk and protective factors that could be used to prevent or mitigate suicidal behaviors of Soldiers, improve overall mental health and resilience of Soldiers, deliver actionable findings to the Army rapidly, and establish Army cohorts for future follow-up studies that will continue to benefit the Army. Army STARRS is a collaborative effort with the University of California, San Diego; Harvard University; The University of Michigan, the National Institute of Mental Health, and the Army as partners. This initiative, involving seven independent but integrated studies, has recruited and collected data from more than 100,000 current Soldiers at more than 70 different Army locations throughout the U.S. and abroad, collected about 77,000 tubes of blood from about 52,000 Soldiers, and analyzed more than a billion data points in existing Army and DOD records for more than 1.6 million past Active Duty Soldiers.

As data collection ended in 2013 for six of the seven studies, the research team began shifting focus to analyzing the huge volume of broad, complex, rich and diverse Army STARRS data. These data include data collected from Soldiers (questionnaires and neurocognitive tests), data obtained from many Army and DOD sources, and data resulting from assays performed on the blood samples. As these

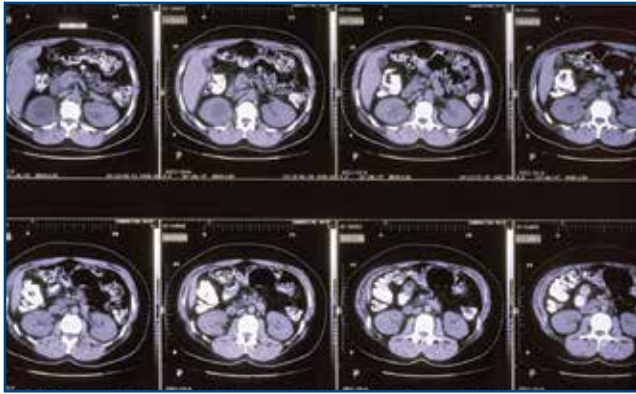
analyses progressed, the research team also began writing manuscripts for publication. At the end of 2013, eight papers were published, three papers were accepted for publication (see Publications, p. 21), four papers were submitted and under review for publication, and thirty additional papers were in various stages of development.

Throughout this project, as findings have become available, the researchers have been reporting results directly to senior Army leadership in regularly-scheduled briefings so the Army would have the ability to apply the findings to ongoing health-promotion, risk-reduction, and suicide-prevention efforts. The benefit from this extraordinary, groundbreaking, immensely successful undertaking, Army STARRS, is just beginning to emerge and will increase substantially over time as researchers extract that value in the final year of the project, and over many years beyond the initial five-year project.

Troop Education for Army Morale (TEAM; PI — **Carol S. Fullerton, Ph.D.**, CSTS Scientific Director, in collaboration with Center Scientists, **Drs. Quinn Biggs** and **James E. McCarroll**) is an innovative early intervention designed to examine and facilitate post-deployment readjustment in U.S. Army Mortuary Affairs Soldiers and their spouses. TEAM, one of the few intervention studies at the Center, began in 2008 and will continue through 2014 — making it one of the longest ongoing studies at the Center.

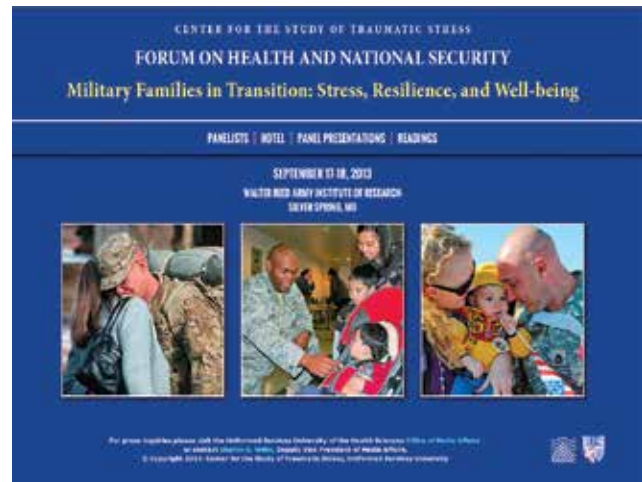


U.S. Soldiers receive instruction on conducting mortuary affairs work at the Mortuary Affairs Collection Point at Bagram Airfield, Afghanistan, Aug. 10, 2011.



In 2013, a total of 30 soldiers were recruited into TEAM, bringing the total number of participants to 135. Participants are randomized either into an educational intervention or a no-intervention comparison group. The intervention is based on the five evidence informed principles of Psychological First Aid: safety (physical and psychological), calming, connectedness, self-efficacy, and hope/optimism). These concepts are delivered through four group workshops, informational handouts, a dedicated website, and supported through concierge phone and email services. Ongoing data analysis includes examination of the impact of TEAM on: symptoms of PTSD and depression, quality of life, personal functioning, social interactions, morale, and the helpfulness of specific components of TEAM (e.g., managing stress, reducing arousal). Results have been presented at several professional meetings, including: the *International Society for Traumatic Stress Studies Annual Meeting*; and the *Association of Behavioral and Cognitive Therapies Annual Meeting*. Several manuscripts are currently in process. Findings from TEAM will inform future interventions with military and civilian populations.

In early 2013 subject recruitment began for, the *Daily Diary Study* (PI — **Carol S. Fullerton, Ph.D.**, in collaboration with Center Scientist **Quinn Biggs, Ph.D.**; Project Coordinator, **Deborah Probe, M.A.**). This innovative study uses an ecological momentary assessment methodology to monitor in real time posttraumatic stress symptoms of Active Duty Service members. The study examines the association of variability in stress symptoms, collected four times daily over a 15 day period, and psychiatric disorders (e.g., PTSD, depression), sleep, pain, health risk



Website for the Forum on Health and National Security conference: Military Families in Transition: Stress, Resilience, and Well-being.

behaviors (e.g., alcohol and tobacco use), and other areas of health and functioning. In 2013, 38 Service members were recruited into *Phase I* of the study and completed daily assessments on paper questionnaires. In *Phase II*, due to begin in 2014, Service members will complete assessments using electronic tablets programmed with a sophisticated application developed specifically for this project through the collaboration of CSTS and the National Center for Telehealth and Technology (T2). Initial *Phase I* data analysis is currently in process, and preliminary findings have been submitted for presentation at the *International Society for Traumatic Stress Studies 2014 Annual Meeting*. This important study will increase our understanding of the relationship between daily variability in posttraumatic stress symptoms and mental health conditions, as well as inform future use of technology in psychiatric assessment, treatment, and research.

Drawing upon its expertise in military and disaster psychiatry and public health, the Center

The intersection between military and disaster psychiatry and public health is also communicated by the Center through participation in professional conferences and presentations to medical colleagues, DOD leadership and policy stakeholders.

responded to the September 16th Washington Navy Yard Shooting. Center scientist, Navy Commander **Patcho Santiago, M.D.**, led a WRNMMC team that provided Psychological First Aid to the Sailors and Navy civilians working aboard the Navy Yard. CSTS also distributed customized, just-in-time fact sheets to over 2,000 government and private sector stakeholders on diverse topics: leadership in the face of workplace tragedy, stress management, managing a workplace after a disaster and restoring well-being in children after a traumatic event. Center scientists, **Joshua Morganstein**, CDR, United States Public Health Services (USPHS) and **Brian Flynn**, RADM (retired) USPHS, provided immediate and extended expert consultation to local officials and DOD personnel who were directly responsible for planning and implementation of disaster response. The CSTS response was featured in the APA's Psychiatric News Alert titled, "Mental Health Response Quickly Follows Navy Yard Shooting."

The intersection between military and disaster psychiatry and public health is also communicated by the Center through participation in professional conferences and presentations to medical colleagues, DOD leadership and policy stakeholders. 2013 highlights include some of the activities of **COL David Benedek, M.D., MC**, Professor and Deputy Chair, Department of Psychiatry, USU and Center Associate Director for Consultation and Education. COL Benedek presented "Military Mental Health Response in Disaster: A Public Health Approach" at the ARCENT Key Leader Engagement Symposium on "The role of military health systems in national disaster preparedness" to an audience of approximately 40 military medical leaders from multiple nations within the U.S. Army's Central Command.

COL Benedek also participated in the White House Office of Science and Technology Policy's discussion on the research action plan for the Presidential Executive Order on "Improving Access to Mental Health Services for Veterans, Service members, and Military Families."

The Center sponsored several important conferences in 2013. The *8th Annual Conference on Amygdala, Stress and PTSD*, "Extinction of Fear" was held at USUHS in April. The annual and highly presti-



gious event brought together scientists and clinicians working towards solving the biological basis of stress, fear and PTSD. This year's conference also celebrated the contri-

butions of **Dr. Harry C. Holloway**, former and first Chair of the Department of Psychiatry at USUHS.

In June, **Dr. Robert J. Ursano**, CSTS Director, **COL Benedek**, and other CSTS staff attended the 2013 Kenneth L. Artiss Symposium focusing on "Psychiatry and Sleep Disorders." Dr. Ursano was a member of the organizing committee and COL Benedek served as Co-Chair of the Artiss Award Committee, introduced the program's honored guest (Mrs. Carola Artiss) and with her presented the Artiss awards. In September, the Center hosted a two-day *Forum on Health and National Security* titled, "Military Families in Transition: Stress Resilience, and Well-being" at Walter Reed Army Institute of Research (WRAIR), which featured leaders in research and policy from the military, community, and academic arenas. COL Benedek served as a panel Chair and moderated the afternoon sessions of that conference.



The Center has expanded its contributions in the field of military psychiatry over a quarter of a century to strengthen the performance, the health and mental health of our troops in combat and in operations other than war, and to foster the resilience of military families and children. 2013 marks the first year of the next quarter century for the Center, a time for sustained commitment to trauma research, education and outreach to improve the lives of our nation's Soldiers, Sailors, Airmen and Marines and the many military families throughout the country and abroad whose quality of life and resilience is vital to them and to our national security.

Child and Family Program

Over a decade of war in Iraq and Afghanistan has taken a toll on thousands of Service members, families and children, many of whom have been impacted by war-related injuries such as loss of limbs or serious burns; through the invisible injuries of war such as posttraumatic stress disorder (PTSD), depression, traumatic brain injuries; and, from post-deployment health risks in the form of alcohol and substance misuse that can result in child maltreatment, neglect and family violence. Many families have also lost loved ones through combat fatalities and suicide. Nearly 45% of the over 2 million Service members who have deployed in the past ten years have children. While most military families are resilient and have had positive experiences, a large population of military families, including those of the Guard and Reserve, will require health and mental health care and services for years to come.

Established in 2006, the Center's Child and Family Program (CFP) has distinguished itself as a

national leader in advancing scientific and clinical knowledge, as well as educational resources that address the needs of children and families affected by trauma, especially our nation's military families and children. **Dr. Stephen J. Cozza**, Associate Director, speaks about the 'intergenerational quality' of the work of CFP, which he directs. "An intergenerational perspective relates to the impact of events within families and across relationships, especially those affected by PTSD, TBI and a multitude of combat injuries. These conditions impact a person's capacity for satisfaction and affect parenting, interpersonal relationships with spouses, partners and children, as well as work. We want to help families minimize these risks by effectively educating them, and providing them with skills and strategies to better manage and be aware of the challenges that they face so they can be less impactful in a negative way."

The Child and Family Program addresses these complex issues through pioneering research, by



Child and Family Program staff: L to R: Susan Van Ost, April Harris, Sara Pula, Claudio Ortiz, Lareina LaFlair, Stephen Cozza, Jill Harrington-LaMorie, Freda Denis-Cooper, Joscelyn Fisher, Allison Holmes, Jing Zhou.



The website home page and portal to the National Military Family Bereavement Study (www.militarysurvivorstudy.org).



The website home page and portal to the Families OverComing Under Stress – Combat Injury (FOCUS-CI) study (www.cifamilies.org).

educating professional audiences including military and government stakeholders at presentations and conferences, through scholarly publications, and through consultation to DOD leadership and national media outlets.

Four CFP research projects continue to shed light on military bereavement, the combat injured family, and child maltreatment and neglect in military communities. The first rigorous scientific study to examine the impact of a U.S. Service member death on surviving family members, *The National Military Family Bereavement Study* (NMFBS; PI — **Stephen Cozza, M.D.** and project manager — **Joselyn Fisher, Ph.D.**), aims to describe the population of Service members who have died since 9/11 and to identify experiences of the Service member's bereaved family members — how psychological, physical and/or behavioral outcomes of the grieving process are influenced by military-unique contributions, as well as family members' pre-existing psychological and physical health, support, and genetic factors. An optional part of the study examines saliva samples for biomarkers associated with outcomes. 2013 saw continued data collection culminating in 1315 completed participant Phase 1 questionnaires. Study participants include both adults and children. Expert consults from Columbia University, UCLA, and

University of Michigan are also involved and collaborating on study analyses.

Families OverComing Under Stress-Combat Injury (FOCUS-CI; PI — **Stephen Cozza, M.D.** and project manager **Allison Holmes, Ph.D.**) is a randomized controlled trial that tests the effectiveness of a newly developed family-centered, strength-based intervention to be used with severely combat injured Service members and their families. This intervention provides instrumental support to families teaching emotion regulation, problem solving, communication, and goal-setting skills. The study is conducted in the Washington, DC, San Antonio, TX and Chapel Hill, NC communities. Families are followed for two years to assess the intervention's impact on key aspects of the long-term recovery trajectory: child distress and functioning, parent distress and functioning, and family functioning and injury communication. 2013 saw the expanded enrollment of 42 families and the inclusion of a new site, the University of North Carolina at Chapel Hill. Both *The National Military Family Bereavement Study* and *FOCUS-CI* have effectively used the web and social media to engage eligible study participants. These vehicles promote understanding of the study, generate interest in participating, and provide updates through the study's website or its Facebook

page. NMFBS, a national study, has representation from every state. Both studies have over 200 Facebook friends and FOCUS CI uses Twitter.

The *Deployment Family Stress: Child Neglect and Maltreatment in U.S. Army Families* study seeks to describe the characteristics of substantiated child neglect cases in the Army, and to identify factors within the family, the military community and the civilian community that contribute to family health or child maltreatment. Findings from this study will help to develop strategies for effective prevention with this population and to foster child and family health in the community. 2013 activity has included the preparation of two manuscripts using the datasets collected from 1,088 questionnaires representing 26 Army installations in the United States.

In addition to research, the Center's CFP disseminates its knowledge of child and military child trauma at professional conferences, through scholarly publications and national media outlets, and through consultation to DOD leadership and organizations. Notable activities in 2013 includes Dr. Cozza's participation in a prestigious journal of social science research, *The Future of Children*, which is a collaboration of the Woodrow Wilson School of Public and



International Affairs at Princeton University and the Brookings Institution. The mis-

sion of the *Future of Children* is to translate the best social science research about children and youth into information that is useful to policymakers, practitioners, grant-makers, advocates, the media, and students of public policy. Dr. Cozza co-edited *Military Children and Families*, (see Publication Section p. 21) and was the lead author of its policy brief, *Keeping the Promise: Maintaining the Health of Military and Veteran Families and Children*. In addition, Dr. Cozza co-edited the American Psychiatric Press volume *Care of Military Service Members, Veterans, and Their Families* with Drs. **Matthew Goldenberg** and **Robert Ursano**. This volume, which provides important information for health care providers

The Center's Child and Family Program (CFP) has distinguished itself as a national leader in advancing scientific and clinical knowledge, as well as educational resources that address the needs of children and families affected by trauma, especially our nation's military families and children.

about the needs of Service members and veterans, and the impact of their conditions on their families, will be published in 2014.

Among the many conferences attended in 2013, Dr. Cozza served as Co-Chair of the Science Board for The Military Child Education Coalition, chaired a workshop at the American Academy of Child and Adolescent Psychiatry on Disaster Child Psychiatry, and participated in the White House *Joining Forces Joining Families Conference* hosted by First Lady, Michelle Obama.

Dr. Cozza also served as a consultant for the newly created DOD/VA website, *Parenting for Service Members and Veterans*, <http://www.military-parenting.org>, part of a coordinated public health initiative to help Veterans and Service members improve their parenting skills. Raising awareness of the challenges of military families and children is yet another means of public education. A January *New York Times* feature drew upon the Center's National Military Family Bereavement Study and quoted Dr. Cozza in an article, "A Soldier's Requiem, Never Fading Away."

The Center has become the voice to the nation on the impact of military family trauma. The Child and Family Program is recognized as a leading authority on military families and children. Leadership carries the heavy burden of responsibility and relevance. It is essential to bridge science to inform quality care and interventions that support and sustain populations at risk. The Center enters its second quarter century with expanded knowledge and commitment to improve the lives of our military families and children, and to mitigate the impact of trauma on all of our nation's children and families.

Disaster Psychiatry and Disaster Behavioral Health

Natural disasters are an enduring phenomenon affecting individuals, families, communities and nations across the globe. Natural disasters disrupt lives, displace many people, and can result in public health crises, injuries and fatalities. These events also can have substantial affects on first responders and individuals in close proximity to, and even far away from, the actual event. The Center has been involved in nearly every disaster since its establishment 26 years ago through post-disaster research, education, and consultation to leadership and community stakeholders in areas of disaster preparedness, response and recovery.

Disaster psychiatry and behavioral health also address human-made disasters such as community violence and terrorism. In 2013, the Center provided educational outreach and consultation to community leaders in the wake of the Moore, Oklahoma tornado and the Boston Marathon bombings. Boston's major hospitals circulated an important Center fact sheet on grief leadership, "Grief Leadership: Leadership in the Wake of Tragedy." In response to Typhoon Haiyan, the Center disseminated 13 fact sheets developed specifically for this disaster. These fact sheets were distributed to Army, Air Force and Navy Psychiatry consultants and Navy mental health leadership. Topics included "leadership stress management", "reducing distress in relief workers



Explosion at the Boston Marathon.

and disaster victims", "restoring a sense of safety in children after disaster", "managing emotions related to handling body remains", among others.

Center Associate Director of Health Systems, **Brian Flynn, Ed.D.**, provides Center leadership in the area of disaster behavioral health policy and systems. Dr. Flynn served as a member of the Institute of Medicine (IOM) Committee on Crisis Standards of Care: A Toolkit for Indicators and Triggers. The committee was charged to develop a product to be used for health care provider organizations to determine what indicators to monitor and critical benchmarks that may result in altered standards of care in events that overwhelm the capacity of elements of the healthcare and public health system. The resulting IOM publication provides a framework to make system decisions such as identifying the tipping point when an institution has to change standards of care in the face of large-scale disasters such as pandemic flu, earthquake, mass fatalities and death. The impact of overwhelming resources post-disaster necessitating altered standards of care will be an important disaster behavioral health trend into the next quarter century with significant implications for our healthcare and public health systems and our nation. The Center will continue to use its broad expertise to assist in anticipating and responding to challenges to health resulting from extreme events.

The Center also addresses the intersection between disaster psychiatry and public health. Dr. Flynn made three presentations at a conference, "Preparing for the Public's Health: Building Sustainable Coalitions for Healthcare & Public Health Preparedness" that was sponsored by the West Virginia Department of Health and Human Resources, Center for Threat Preparedness.

Center Director, **Dr. Robert Ursano** appointed Dr. Flynn to represent the Center and the Department of Psychiatry on the USUHS Global Health Program Working Group (GHPWG), which was established by USUHS President Dr. Charles Rice to

increase integration of USUHS global health efforts and to facilitate interaction with groups with similar interests outside USUHS.

Representing the Center, Dr. Flynn was an invited member of the Community Resilience Working Group of the National Biodefense Science Board. The Community Health Resilience Working Group (CHR WG) was established under the National Biodefense Science Board (NBSB) to explore the concepts and issues related to Community Health Resilience and to make actionable recommendations as a part of the report to the United States Department of Health and Human Services (HHS), Office of the Assistant Secretary for Preparedness and Response (ASPR).

Extreme events will doubtless continue to challenge the global community. The Center's work in disaster psychiatry and disaster behavioral health will continue to expand its influence in areas of public health and public health policy, community efficacy and global health. This requires that the Center be positioned at the forefront of anticipating emerging challenges and driving the field. Dr. Flynn believes there will be at least three important disaster behavioral health challenges emerging in the next 25 years. "First, there will be different kinds of disasters necessitating new learning and new responses such as pan flu, cyberterrorism and massive infrastructure failure. Second, research challenges will include being able to implement findings and design efficacious approaches in the context of limited and slow to emerge intervention research. Lastly, integration of effort will require working across disciplines and engaging the public and private sector." The Center's leadership in defining and advancing the fields of disaster psychiatry and disaster behavioral health has laid a foundation in research, education and application. The Center is in a unique and fortunate



position to lead the field and the nation in addressing these and other critical issues as we move into the future.

Oklahoma tornado clean-up.

The First Study of Community Strength (Collective Efficacy) and Post Disaster Mental Health

Work done in 2013 resulted in the publication of an innovative and important study, *Posttraumatic Stress Disorder and Community Collective Efficacy Following the 2004 Florida Hurricanes* (Ursano et al., PLoS ONE 9(2): e88467, doi:10.1371/journal.pone.0088467). This study examining the responses of Florida Department of Health (FDOH) workers to the multiple hurricanes of 2004, was conducted under the leadership of **Robert J. Ursano, M.D.**, Director, CSTS, **Carol S. Fullerton, Ph.D.**, Scientific Director, CSTS, and **Dori Reissman, M.D., M.P.H.**, CSTS and Centers for Disease Control (CDC) Scientist (ref: Ursano RJ, McKibben JBA, Reissman, DB, Liu X, Wang L, Sampson, RJ, Fullerton, CS. (2014). This project represented collaboration between CSTS, CDC, FDOH, and Harvard University. Ongoing data analysis is being conducted including examination of the relationship of depression and distress and community collective efficacy.

- Collective efficacy is a key measure of community strength and cohesion.
- Strong communities are associated with lower rates of Posttraumatic Stress Disorder (PTSD) following the Florida hurricanes of 2004.
- Higher levels of community strength were associated with lower levels of PTSD in Florida Department of Health workers 9 months following the hurricanes.
- For individuals who had *high injury or damage as a result of the hurricanes*, the probability of having PTSD is 16% in communities with low community strength. This decreases to 5% in communities with high community strength — representing a 69% reduction in PTSD.
- Similarly, for those with *lower injury or damage as a result of the hurricane*, the probability of PTSD was 8% in communities with low community strength. This decreased to 2% in communities with high community strength — representing a 75% reduction in PTSD.
- Programs enhancing community strength may be an important part of prevention practices and possibly lead to a reduction in the rate of PTSD.
- Intervening at a community level is often cost-effective and practical, and may reach individuals who may not seek or have available individual interventions post-disaster.

Public Education Outreach and Resources

The Center for the Study of Traumatic Stress provides a wide range of educational activities and resources that advance its expertise in disaster and military psychiatry, social and organizational psychiatry, neuroscience, family violence, workplace preparedness and public education. The Center hosts professional conferences, develops fact sheets and just-in-time fact sheets in the immediate aftermath of a major traumatic event, creates innovative health campaigns that address timely trauma needs, and works with cutting edge technologies and organizations to produce podcasts and distance learning products, and to communicate via social media outlets. In 2003, the Center established an Office of Public Education and Preparedness (OPEP) under the direction of Center Associate Director, **Nancy Vineburgh, M.A.**, to support and coordinate many of these activities.

2013 saw a number of notable achievements. Drawing upon a library of military health fact sheets from the *Courage to Care* campaign as well as CSTS fact sheets addressing disaster psychiatry and disaster behavioral health, the Center published *Disaster, Disease and Distress: Resources to Promote Psychological Health and Resilience in Military and Civilian Communities* edited by **James McCarroll, Ph.D.**, **Nancy Vineburgh, M.A.** and **Robert Ursano, M.D.** This book contains fact sheets and resources written over a 10-year period on topics related to military health for Service members and families and disaster behavioral health topics for community leadership. This resource book can be accessed on the Center's website, www.cstsonline.org.

The Center developed and disseminated a number of customized, just-in-time fact sheets in the



aftermath of the Washington Navy Yard shooting (see p. 10–11) and Typhoon Haiyan (see p. 15), which supported the outreach of DOD leadership and civilian first responders.

The Center hosted two major conferences in 2013. The *8th Annual Conference on Amygda-*

la, Stress and PTSD, “Extinction of Fear” was held at USUHS in April. The annual and highly prestigious event brought together scientists and clinicians working towards understanding the biological basis of stress, fear and PTSD. The Center hosted a two-day *Forum on Health and National Security*, “Military Families in Transition: Stress Resilience, and Well-being” at Walter Reed Army Institute of Research (WRAIR), which featured leaders in research and policy from the military, community, and academic arenas.

The Center distributed three of its fact sheets in honor of June 27th as PTSD Awareness Day and the Congressional designation of June 2013 as National Post-Traumatic Stress Disorder Awareness Month. These fact sheets, sent directly to Congressional stakeholders, included “Post Deployment Health and Distress Responses: Overview for Practitioners,” “The Invisible Injuries of War: Impact on Military Families and Children,” for healthcare providers, and “The Impact of Invisible Injuries: Helping Your Family and Children,” for Service members and families.

Entering its second quarter century of service to our nation, the Center is fully committed to continuing to translate its knowledge of disaster and military psychiatry into actionable resources that support and guide the efforts of DOD, government, state, local and organization leadership in meeting the needs of those impacted by natural and human made disasters around the globe.

Presentations, Conferences and Trainings

Center scientists advance their knowledge of military and disaster psychiatry and disaster behavioral health through presentations to professional audiences and organizations, through conference participation, through briefings to DOD leadership, and through consultation and training in the United States and abroad. Highlights of 2013 activities include:

Grand Rounds

Dr. Ursano presented Grand Rounds at Wright State University and at Ohio State University on the topic, “PTSD and Other Trauma Disorders.”

The White House

COL Benedek participated in the White House Office of Science and Technology Policy’s discussion on the research action plan for the Presidential Executive Order on “Improving Access to Mental Health Services for Veterans, Service Members, and Military Families.”

Dr. Cozza participated in the White House Joining Forces Joining Families Conference hosted by First Lady Michelle Obama.



Dr. Ursano delivers a presentation at the Washington, D.C. Embassy of Italy’s symposium, “The Mass Disasters in Metropolitan Areas —Preparedness and Response: Theoretical and Practical Aspects.”

DOD Leadership

Dr. Ursano presented research findings at ARMY STARRS Interim Progress Reports at the Pentagon, a quarterly briefing to the Secretary of the Army, the Army Chief of Staff, the Army Vice Chief of Staff, the Army Surgeon General, among others.

Dr. Ursano participated in a Media Roundtable as part of the Military Health System Research Symposium. The Roundtable brought together a small group of experts to discuss how our knowledge of mental health and traumatic brain injuries has evolved over the last decade of war.

Professional Associations and Conferences

COL Benedek presented, “Pharmacological Treatment of PTSD” at the annual meeting of the Las Vegas Psychiatric Society to an audience of approximately 500 psychiatrists, a sizable number of whom work in VA settings and/or treat military veterans.

Dr. Ursano attended the 166th annual meeting of the American Psychiatric Association as a council member on research and quality care. He chaired the Disaster Psychiatry Committee and presented “Acute Stress Disorder DSM-5.”

Dr. Flynn presented, “Disaster Behavioral Health: Designing, Building, and Traveling a Road to Recovery” at the first Center for Disaster Preparedness & Emergency Response Statewide Conference on Disaster Behavioral Health, at Rutgers University in New Jersey.

Dr. Ursano, COL Benedek and other CSTS staff attended the 2013 Kenneth L. Artiss Symposium focusing on “Psychiatry and Sleep Disorders.” Dr. Ursano was a member of the organizing committee and Col Benedek co-presented the awards.

Center scientists, **Drs. Ursano, Cozza, Fisher, Ortiz, Harrington-Lamorie, Dempsey, Holmes, Fullerton, Biggs, Flynn, McCarroll, Mash, Naifeh, Mr. Sottile, Ms. Benevides and Ms. Niemeyer**, participated in and presented multiple posters at the ISTSS 29th Annual Meeting, “Resilience After

Trauma: From Surviving to Thriving.”

The Washington, D.C. Embassy of Italy, in collaboration with Uniformed Services University and Washington Psychiatric Society, held a symposium, *The Mass Disasters in Metropolitan Areas —Preparedness and Response: Theoretical and Practical Aspects*. Drs. Robert Ursano, Daniel Balog and David Benedek of the Center for the Study of Traumatic Stress provided individual presentations: “Mental Health and Behavioral Responses to Terrorism: Lessons for Planning”, “Emergency Mental Health Response”, “Preparing US Embassies abroad: Disaster and Terrorism. Psychiatric Response and Recovery”.

International Outreach

COL Benedek delivered 2-day training on “Psychological Rehabilitation of Combatants” to faculty of Kazakhstan National Defense University, Astana, Kazakhstan that was coordinated by Marshall Center for Peace, Garmisch Germany and Office of International Cooperation, U.S. Embassy Kazakhstan.

Dr. Duncan presented her paper, “Information Processing in Combat-Injured U.S. Military Service Members: An Event-Related Brain Potential Analysis.” at the 53rd Annual Conference of the Society for Psychophysiological Research in Florence, Italy.

TOPICS OF INTEREST

Family Violence

Dr. Ursano presented “Exposure to Violence in the Community, in the Home, in the Media, and on



the Battlefield” as part of an IOM panel at the National Academy of Science.

Impact of Terrorism on Understudied Populations

Dr. Ursano, Dr. Fullerton, Dr. Mash, Dr. Dempsey, and Ms. Nikki Benevides presented a poster for USUHS Research Days entitled: “Washington, D.C. Sniper Attacks: Psychological Outcomes and Perceived Safety.”

Public Health Preparedness

Dr. Flynn made three presentations at a conference titled, “Preparing for the Public’s Health: Building Sustainable Coalitions for Healthcare & Public Health Preparedness” sponsored by the West Virginia Department of Health and Human Resources, Center for Threat Preparedness.

Combat Injury and Bereavement

Dr. Allison Holmes presented her paper, “Child Well-being in Combat-Injured Military Families: The Moderating Effects of Adaptive Parenting and Parental Mental Health” at the Biennial Meeting of the Society of Research in Child Development in Seattle.

A paper, “Developing and conducting national field research with a unique sub-population: A brief report,” prepared by Drs. Cozza, Harrington-LaMorie, Fisher, Ortiz, Fullerton, and Ursano, was presented at the Association for Death Education and Counseling, Hollywood, CA.

2013 Funded Grants

Study	Funding Institution
Addressing the Needs of Children and Families of Combat Injured	CDMRP
Deployment Family Stress: Child Neglect and Maltreatment in U S Army Families	CDMRP
FOCUS-CI Preventive Intervention with Children and Families of Combat Injured	USAMRAA
Military Families: A National Study of Bereavement Impact of Service Member Death	CDMRP
PTSD/TBI Clinical Intrust	CDMRP
A Pilot Safety and Feasibility Study of High Dose Left Prefrontal Transcranial Magnetic Stimulation (TMS) UC San Diego	
A Proof-of-Concept, Double-blind, Randomized, Placebo-Controlled Study of Ganaxolone in PTSD	UC San Diego
The Injury and Traumatic Stress (INTRuST) CONSORTIUM Biorepository	UC San Diego
Riluzole Augmentation Treatment for Complicated PTSD	MOMRP
Resilience Building for Homeland Security	DHS
InTRUST Brain Indices Study	UCSD
Family Violence and Trauma Project III	US Army
CSTS - Program Grant	DCoE
PTSD Trajectory, Comorbidity and Utilization of MH Services	USAMRAA
Modifiable Risk and Protective Factors for Suicidal Behaviors in the US Army	NIMH
Personally Owned Firearms	H.A./DOD
Behavioral-based Predictions of Workplace Violence in The Army STARRS	Harvard University
Mortuary Affairs Soldiers: Early Intervention and Altering Barriers to Care for Traumatic Stress and PTSD	CDMRP

Publications

Journal Articles

- Allen K.J. & Gabbay F.H. (2013). The amphetamine response moderates the relationship between negative emotionality and alcohol use. *Alcoholism: Clinical and Experimental Research*, 37(2): 348–360.
- Bergstrom H.C., McDonald C.G., Dey S., Fernandez G.M., & Johnson L.R. (2013). Neurons activated during fear memory consolidation and reconsolidation are mapped to a common and new topography in the lateral amygdala. *Brain Topography*, 26(3): 468–478.
- Chambers R.A., McClintick J.N., Sentir A.M., Berg S.A., Runyan M., Choi K.H., & Edenberg H.J. (2013). Cortical-striatal gene expression in neonatal hippocampal lesion (NVHL)-amplified cocaine sensitization. *Genes, Brain and Behavior*, 12(5): 564–575.
- Coyner J., McGuire J.L., Parker C.C., Ursano R.J., Palmer A.A., & Johnson L.R. (2013). Mice selectively bred for high and low fear behavior show difference in the number of pMAPK (p44/42 ERK) expressing neurons in lateral amygdala following Pavlovian fear conditioning. *Neurobiology of Learning and Memory*, advance online publication, 28 June 2013.
- Choi K., Im H.J., Kim J., Choi K.H., Jon D.I., Hong H., Hong N., Lee E., & Seok J.H. (2013). Relationship of early-life stress and resilience to military adjustment in a young adulthood population. *Social Psychiatry and Psychiatric Epidemiology*, 48(11): 1767–1776.
- Cozza S.J., Haskins R., & Lerner R.N. (2013). Keeping the promise: Maintaining the health of military and veteran families and children. *Military Children and Families*, 23(2): 1–8.
- Cozza S.J., Holmes A.K., & Van Ost S.L. (2013). Family-centered care for military and veteran families affected by combat injury. *Clinical Child Family Psychology Review*, 16(3): 311–321.
- Fullerton C.S., McKibben J.B.A., Reissman D.B., Scharf T., Kowalski-Trakofler K.M., Shultz J.M., & Ursano R.J. (2013). PTSD, depression, alcohol and tobacco use in public health workers following the 2004 Florida hurricanes. *Disaster Medicine and Public Health Preparedness*, 7(1): 89–95.
- Gibbons S.W., Shafer M., Aramanda L., Hickling E.J., & Benedek D.M. (2013). Combat health care providers and resiliency: Adaptive coping mechanisms during and after deployment. *Psychological Services*, advance online publication, 15 July 2013.
- Heeringa S.G., Gebler N., Colpe L.J., Fullerton C.S., Hwang I., Kessler R.C., Naifeh J.A., Nock M.K., Sampson N.A., Schoenbaum M., Zaslavsky A.M., Stein M.B., & Ursano R.J. (2013). Field procedures in the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS). *International Journal of Methods in Psychiatric Research*; 22(4): 276–287.
- Herberman Mash H.B., Fullerton C.S., Kowalski-Trakofler K., Reissman D.B., Scharf T., Shultz J.M., & Ursano R.J. (2013). Florida Department of Health workers' response to 2004 hurricanes: A qualitative analysis. *Disaster Medicine and Public Health Preparedness*, 7(2): 153–159.
- Herberman Mash H.B., Fullerton C.S., & Ursano R.J. (2013). Complicated grief and bereavement in young adults following close friend and sibling loss. *Depression and Anxiety*, 30(12): 1202–1210.
- Kaplow J.B., Layne C.M., Saltzman W.R., Cozza S.J., & Pynoos R.S. (2013). Using multidimensional grief theory to explore the effects of deployment, reintegration, and death on military youth and families. *Clinical Child Family Psychology Review*, 16(3): 322–340.
- Kessler R.C., Colpe L.J., Fullerton C.S., Gebler N., Naifeh J.A., Nock M.K., Sampson N.A., Schoenbaum N., Zaslavsky A.M., Stein M.B., Ursano R.J., & Heeringa S.G. (2013). Design of the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS). *International Journal of Methods in Psychiatric Research*; 22(4): 267–275.

Kessler R.C., Heeringa S.G., Colpe L.J., Fullerton C.S., Gebler N., Hwang I., Naifeh J.A., Nock M.K., Sampson N.A., Schoenbaum M., Zaslavsky A.M., Stein M.B., & Ursano R.J. (2013). Response bias, weighting adjustments, and design effects in the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS). *International Journal of Methods in Psychiatric Research*; 22(4): 288–302.

Kessler R.C., Santiago P.N., Colpe L.J., Dempsey C.L., First M.B., Heeringa S.G., Stein M.B., Fullerton C.S., Gruber M.J., Naifeh J.A., Nock M.K., Sampson N.A., Schoenbaum M., Zaslavsky A.M., & Ursano R.J. (2013). Clinical reappraisal of the Composite International Diagnostic Interview Screening Scales (CIDI-SC) in the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS). *International Journal of Methods in Psychiatric Research*; 22(4): 303–321.

McGuire J.L., Bergstrom H.C., Parker C.C., Le T., Morgan M., Tang H., Selwyn R.G., Silva A.C., Choi K., Ursano R.J., Palmer A.A., & Johnson L.R. (2013). Traits of fear resistance and susceptibility in an advanced intercross line. *European Journal of Neuroscience*, 38(9): 3314–3324.

McKibben J.B.A., Fullerton C.S., Herberman Mash H.B., Nock M.K., Naifeh J.A., Kessler R.C., Stein M.B., & Ursano R.J. (2013). Suicidal behaviors and the use of mental health services among active duty Army soldiers. *Psychiatric Services*, advance online publication, 2 December, 2013.



Nock M.K., Deming C.A., Fullerton C.S., Gilman S., Goldenberg M., Kessler R.C., McCarroll J.E., McLaughlin K.A., Peterson C., Schoenbaum M., Stanley B., & Ursano R.J. (2013). Suicide among soldiers: A review of psychosocial risk and protective factors. *Psychiatry*, 76(2): 97–125.

Ortiz C.D., Cozza S.J., Fullerton C.S., & Ursano R.J. (2013). Feasibility of a multimedia program for parentally bereaved children. *Child & Youth Care Forum*, 42: 489–506.

Santiago P.N., Ursano R.J., Gray C.L., Pynoos R.S., Spiegel D., Lewis-Fernandez R., Friedman M.L., & Fullerton C.S. (2013). A systematic review of PTSD prevalence and trajectories in DSM-5 defined trauma exposed populations: Intentional and non-intentional traumatic events. *PLoS One*, 8(4): e59236.

Thomas M.L., Brown G.G., Gur R.C., Hansen J.A., Nock M.K., Heeringa S., Ursano R.J., & Stein M.B. (2013). Parallel psychometric and cognitive modeling analyses of the Penn Face Memory Test in the Army Study to Assess Risk and Resilience in Service Members. *Journal of Clinical and Experimental Psychology*, 35(3): 225–245.

Umhau J.C., George D.T., Heaney R.P., Lewis M.D., Ursano R.J., Heilig M., Hibbeln J.R., & Schwandt M.L. (2013). Low vitamin D status and suicide: A case-control study of active duty military service members. *PLoS One*, 8(1): e51543.

Ursano R.J. (2013). Ask the expert: Posttraumatic stress disorder and brain injury. *FOCUS*, 11(3): 1–3.

Zhang L., Benedek D.M., Fullerton C.S., Forsten R.D., Naifeh J.A., Li X.X., Hu X.Z., Li H., Jia M., Xing G.Q., Benevides K.N., & Ursano R.J. (2013). PTSD risk associated with BDNF Val66Met and BDNF over-expression. *Molecular Psychiatry*, advance online publication, 15 January 2013.

Zhang L., Hu X.Z., Benedek D.M., Fullerton C.S., Forsten R.D., Naifeh J.A., Li X., Li H., Benevides K.N., Smerin S., Le T., Choi K., & Ursano R.J. (2013). The interaction between stressful life events and leukocyte telomere length is associated with PTSD. *Molecular Psychiatry*, advance online publication, 5 November 2013.

Book Chapters

Dempsey C.L., Fullerton C.S., Herberman Mash H.B., Ramsawh H., Naifeh J.A., & Ursano R.J. (2013). New approaches in suicide research. In M.S. Mortensen (Ed.), *Explorations in social causality: A tribute to Eilert Sundt*. Oslo, Norway: Atlantic Press.

Ursano A.M., Sonnenberg S.M., & Ursano R.J. (2013). Physician-patient relationship. In A. Tasman, J. Kay, R.J. Ursano (Eds.), *The Psychiatric Interview: Evaluation and Diagnosis* (pp. 31–46). New Jersey: Wiley-Blackwell Press.

Xing G., Carlton J., Jiang X., Jia M., Sharma P., Choi K.H., & Li H. (2013). Delayed effects of repeated inescapable severe stress on brain cannabinoid receptor expression and acoustic startle response in adolescent male rats: Relevance to the development of posttraumatic stress disorder and stress-related brain atrophy. In E. Forman & J.

Fuller (Eds.), *Post-Traumatic Stress Disorder: New Research*. Hauppauge, NY: Nova Sciences Publishers, Inc.

Zhang L., Li C.T., Su, T-P, Hu X-Z., Smerin S., Li H., Li X., & Ursano R.J. (2013). Potential biomarkers for bipolar disorder: P11 expression and PET. In N.B. Moore (Ed.), *Bipolar Disorder: Symptoms, Management and Risk Factors*. Hauppauge, NY: Nova Sciences Publishers, Inc.

Books

McCarroll J.E., Vineburgh N., & Ursano R.J. (Eds.). (2013). *Disaster, Disease and Distress: Resources to Promote Psychological Health and Resilience in Military and Civilian Communities*. Bethesda, MD: Center for the Study of Traumatic Stress.

Tasman A., Kay J., & Ursano R.J. (Eds.). (2013). *The Psychiatric Interview: Evaluation and Diagnosis*. New Jersey: Wiley-Blackwell Press.



CSTS Directors, Scientists, and Scientific Advisory Board

CSTS DIRECTORS

Robert J. Ursano, M.D.

Professor and Chair, Department of Psychiatry
Uniformed Services University
Director, Center for the Study of Traumatic Stress

COL David M. Benedek, M.D. MC, USA

Professor and Deputy Chair, Department of
Psychiatry
Uniformed Services University
Associate Director, Consultation and Education
Center for the Study of Traumatic Stress

Stephen J. Cozza, M.D.

Professor, Department of Psychiatry
Uniformed Services University
Associate Director, Child and Family Program
Center for the Study of Traumatic Stress

Brian W. Flynn, Ed.D.

Adjunct Professor, Department of Psychiatry
Uniformed Services University
Associate Director, Health Systems
Center for the Study of Traumatic Stress

Carol S. Fullerton, Ph.D.

Research Professor, Department of Psychiatry
Uniformed Services University
Scientific Director
Center for the Study of Traumatic Stress

Robert K. Gifford, Ph.D.

Assistant Professor, Department of Psychiatry
Uniformed Services University
Executive Officer, and Associate Director, Homeland
Security Studies
Center for the Study of Traumatic Stress

John A. Stuart, Ph.D.

Assistant Professor, Department of Psychiatry
Uniformed Services University
Director, Resource Management
Center for the Study of Traumatic Stress

Nancy T. Vineburgh, M.A.

Assistant Professor, Department of Psychiatry
Uniformed Services University
Associate Director, Public Education and Preparedness
Center for the Study of Traumatic Stress

CSTS SCIENTISTS

Col Daniel J. Balog, M.D., USAF, MC, FS

Assistant Professor and Assistant Chair
Department of Psychiatry
Uniformed Services University

COL David M. Benedek, M.D., MC, USA

Professor and Consultant to the U.S. Army Surgeon Gen-
eral for Forensic Psychiatry
Department of Psychiatry
Uniformed Services University

Quinn M. Biggs, Ph.D., M.P.H.

Research Assistant Professor
Department of Psychiatry
Uniformed Services University

Maria Braga, D.D.S., Ph.D.

Associate Professor
Department of Anatomy, Physiology and Genetics
Uniformed Services University

Kwang Choi, Ph.D.

Research Assistant Professor
Department of Psychiatry
Uniformed Services University

Stephen J. Cozza, M.D.

Professor
Department of Psychiatry
Uniformed Services University

Brian Crowley, M.D.

Clinical Assistant Professor
Department of Psychiatry
Uniformed Services University

Catherine L. Dempsey Ph.D., M.P.H.

Research Assistant Professor
Department of Psychiatry
Uniformed Services University

Connie Duncan, Ph.D.

Research Associate Professor
Department of Psychiatry
Uniformed Services University

Richard S. Epstein, M.D., P.A.

Clinical Professor
Department of Psychiatry
Uniformed Services University

Col Charles Engel, M.D., M.P.H., MC, USA

Associate Professor
Department of Psychiatry
Uniformed Services University

Joscelyn E. Fisher, Ph.D.

Project Director/Research Psychologist
Department of Psychiatry
Uniformed Services University

Brian W. Flynn, Ed.D.

Adjunct Professor
Department of Psychiatry
Uniformed Services University

Michael C. Freed, Ph.D.

Research Assistant Professor
Department of Psychiatry
Uniformed Services University

Carol S. Fullerton, Ph.D.

Research Professor
Department of Psychiatry
Uniformed Services University

Frances Gabbay, Ph.D.

Research Associate Professor
Department of Psychiatry
Uniformed Services University

Col Gary Gackstetter, USAF

Associate Professor
Department of Preventive Medicine/Biometrics
Uniformed Services University

Robert K. Gifford, Ph.D.

Assistant Professor
Department of Psychiatry
Uniformed Services University

Lt Col Derrick Hamaoka, M.D., USAF, MC, FS

Assistant Professor
Department of Psychiatry
Uniformed Services University

Jill Harrington-LaMorie, DSW, LCSW

Senior Field Researcher
Department of Psychiatry
Uniformed Services University

Harry C. Holloway, M.D.

Professor
Department of Psychiatry
Uniformed Services University

Marjan G. Holloway, Ph.D.

Assistant Professor
Department of Medical & Clinical Psychology
Uniformed Services University

Allison K. Holmes, Ph.D.

Project Director/Research Psychologist
Department of Psychiatry
Uniformed Services University

Tomoko I. Hooper, M.D.

Assistant Professor
Department of Preventive Medicine/Biometrics
Uniformed Services University

Edmund G. Howe III, M.D., J.D.

Professor
Department of Psychiatry
Uniformed Services University

Luke Johnson, Ph.D.

Assistant Professor
Department of Psychiatry
Uniformed Services University

Tzu Cheg Kao, Ph.D.

Professor
Department of Preventive Medicine and Biometrics
Uniformed Services University

Elie Karam, M.D.

Professor and Chairman
Department of Psychiatry
American University — Beirut
Beirut, Lebanon

Lareina LaFlair, Ph.D., M.P.H.

Research Psychologist
Department of Psychiatry
Uniformed Services University

He Li, M.D., Ph.D.

Associate Professor
Department of Psychiatry
Uniformed Services University

Xian Liu, Ph.D.

Research Assistant Professor
Deployment Health Clinical Center
Walter Reed Army Medical Center

David Marlowe, Ph.D.

Senior Lecturer
Department of Psychiatry
Uniformed Services University

Holly B. Mash, Ph.D.

Research Assistant Professor
Department of Psychiatry
Uniformed Services University

James E. McCarroll, Ph.D., M.P.H.

Research Professor
Department of Psychiatry
Uniformed Services University

CDR Joshua Morganstein, M.D., MC, USPHS

Assistant Professor
Department of Psychiatry
Uniformed Services University

James Naifeh, Ph.D.

Research Assistant Professor
Department of Psychiatry
Uniformed Services University

Claudio Ortiz, Ph.D.

Research Psychologist
Department of Psychiatry
Uniformed Services University

Holly Ramsawh, Ph.D.

Research Assistant Professor
Department of Psychiatry
Uniformed Services University

CAPT Dori B. Reissman, M.D., M.P.H., USPHS

Medical Director, World Trade Center Responder
Health Program
Senior Medical Advisor, National Institute of
Occupational Safety and Health
Department of Psychiatry
Uniformed Services University

MAJ Dale Russell, Ph.D., MSC, USA

Research Psychologist
Department of Psychiatry
Uniformed Services University

LCDR Patcho Santiago, M.D., M.P.H., MC, USN

Assistant Professor
Department of Psychiatry
Uniformed Services University

Patricia Spangler, Ph.D.

Clinical Research Psychologist
Department of Psychiatry
Uniformed Services University

John A. Stuart, Ph.D.

Research Assistant Professor
Department of Psychiatry
Uniformed Services University

E. Fuller Torrey, M.D.

Associate Director for Research
Stanley Medical Research Institute
Bethesda, MD

Robert J. Ursano, M.D.

Professor and Chair
Department of Psychiatry
Uniformed Services University

Susan Van Ost, Ph.D.

Senior Child Psychiatrist
Department of Psychiatry
Uniformed Services University

Nancy T. Vineburgh, M.A.

Assistant Professor
Department of Psychiatry
Uniformed Services University

Jing Wang, Ph.D.

Research Psychologist
Department of Psychiatry
Uniformed Services University

Maree J. Webster, Ph.D.

Assistant Research Professor
Stanley Medical Research Institute
Bethesda, MD 20889

Lars Weisaeth, M.D.

Professor
Department of Psychiatry
Uniformed Services University

CDR Curt West, M.D., MC, USN

Assistant Professor
Clerkship Director
Department of Psychiatry
Uniformed Services University

Anthony Woodson, D.H.A.

Associate Administrator
Center for the Study of Traumatic Stress
Department of Psychiatry
Uniformed Services University

Kathleen Wright, Ph.D.

Deputy Chief
Department of Military Psychiatry
Division of Neuropsychiatry
Walter Reed Army Institute of Research

LTC Gary Wynn, M.D., MC, USA

Assistant Professor
Department of Psychiatry
Uniformed Services University

Lei Zhang, M.D.

Assistant Professor
Department of Psychiatry
Uniformed Services University

SCIENTIFIC ADVISORY BOARD

James E. Barrett, Ph.D.

Department of Pharmacology and Physiology
Drexel University, College of Medicine
245 N. 15th Street
Mail Stop 488, Room 8213
Philadelphia, PA 19102-1192

Col Charles W. Beadling, USAF, MC

Academic Division Director
Department of Military and Emergency Medicine
F. Edward Hebert School of Medicine
Uniformed Services University
4301 Jones Bridge Road
Bethesda, MD 20814-4799

M. Richard Fragala, M.D.

P.O. Box 182
Malverne, NY 11565

Matthew J. Friedman, M.D.

Executive Director
National Center for Posttraumatic Stress Disorder
(116D)
VAM & ROC
215 North Main Street
White River Junction, VT 05001-3833

Carol S. Fullerton, Ph.D.

Research Professor, Department of Psychiatry
Scientific Director, Center for the Study of Traumatic
Stress
Uniformed Services University of the Health Sciences
4301 Jones Bridge Road
Bethesda, MD 20814-4799

CAPT Paul S. Hammer, MC USN

Director
Defense Centers of Excellence (DCOE) for Psychological
Health and Traumatic Brain Injury

David S. Krantz, Ph.D.

Chair, Department of Medical and Clinical Psychology
Uniformed Services University of the Health Sciences
4301 Jones Bridge Road
Bethesda, MD 20814-4799

Larry W. Laughlin, M.D., Ph.D.

Dean
Uniformed Services University of the Health Sciences
4301 Jones Bridge Road
Bethesda, MD 20814-4799

Craig H. Llewellyn, M.D.

Professor
Department of Military and Emergency Medicine
Uniformed Services University of the Health Sciences
4301 Jones Bridge Road
Bethesda, MD 20814-4799

David H. Marlowe, Ph.D.

Senior Lecturer
Department of Psychiatry
Uniformed Services University of the Health Sciences
4301 Jones Bridge Road
Bethesda, MD 20814-4799

Robert M. Post, M.D.

Head, Bioplar Collaborative Network
3502 Turner Lane
Chevy Chase, MD 20815

CAPT Gerald V. Quinnan, Jr., MC, USN

Professor and Chair, Preventive Medicine & Biometrics
RADM, USPHS (Ret)
Uniformed Services University of the Health Sciences
4301 Jones Bridge Road
Bethesda, MD 20814-4799

Arieh Y. Shalev, M.D.

Professor and Chairman
Department of Psychiatry
Hadassah University School of Medicine
Jerusalem, Israel

CAPT Trueman Sharp, MC, USN

Department Chair, Military and Emergency Medicine
Uniformed Services University of the Health Sciences
4301 Jones Bridge Road
Bethesda, MD 20814-4799

Robert J. Ursano, M.D.

Professor and Chairman, Department of Psychiatry
Director, Center for the Study of Traumatic Stress
Uniformed Services University of the Health Sciences
4301 Jones Bridge Road
Bethesda, MD 20814-4799

Lars Weisaeth, M.D.

Professor and Chairman
Division of Disaster Psychiatry
University of Oslo
Oslo, Norway

STAFF

Pablo Aliaga
Daniel Alvarez
Abby Anderson
Jean Arlt
TSgt Rondricueas Barlow
Erin Beech
K. Nikki Benevides
Natasha Benfer
LCDR Jennifer Bornemann
Christina Buckley
Nina Calmenson
Freda Denis-Cooper
Amanda Devane
TSgt Theda Franklin

Katie Grein
April Harris
Karly Hrank
Paul Hurwitz
Jessica Kansky
Natalie Kodsy
David Kopp
Thien Le
Alex Liu
Mona Mendelson
Diana Monday
Susan Moss
Stefanie Moynihan
Stanley Ng
Nichole Nicholas
April Perez

Joseph Piemontese
Karen Plummer
Deborah Probe
Sara Pula
Heidi Shul
James Sottile
Chad Spiegel
Natara Strother-Ware
Allison Stuppy
Jamie Sullivan
Patti Vegella
Leming Wang
Holly Wu
Bailey Zhang
Jing Zhou





Photo Credits

Inside front cover:

Moore, Oklahoma Disaster Response

U.S. Army photo by Sgt. 1st Class Kendall James

p. 1 Washington Navy Yard Shooting Memorial Service

Defenseimagery.mil

p. 2 U.S. Troops Assist Victims of Typhoon Haiyan
DefenseImagery.mil

p. 3 Dr. Carol S. Fullerton
Brian W. Flynn

p. 3 Dr. Fullerton and Drs. Mash and Quinn
Brian W. Flynn

p. 4 Typhoon Haiyan in the Philippines
The Boston Globe

p. 6 Telomeres
National Institute of Health

p. 7 U.S. Army Soldier
DefenseImagery.mil

p. 8 Reserve Drill Sergeants
DefenseImagery.mil

p. 9 Mortuary Affairs Collection Point at Bagram Airfield, Afghanistan
Defenseimagery.mil
By Sgt. 1st Class Peter Mayes

p. 12 Child and Family Program Staff
Brian W. Flynn

p. 15 Explosion at the Boston Marathon
The Boston Globe

p. 16 Oklahoma Guard Conduct Search, Rescue Operations in Moore
DefenseImagery.mil

p. 13 Homecoming
DefenseImagery.mil

p. 18 Dr. Ursano at D.C. Embassy of Italy's Symposium
D.C. Embassy of Italy

p. 19 Service Member and Family
DefenseImagery.mil

p. 22 American Flag Reflection on Water
Donna Flynn

p. 23 Arlington National Cemetery
Brian W. Flynn

p. 28 Left and middle Service Member Images
DefenseImagery.mil

Inside back cover
Brian W. Flynn

All other photographs: Ingimages.com



Center for the Study of Traumatic Stress
Department of Psychiatry
Uniformed Services University
4301 Jones Bridge Road
Bethesda, MD 20814-4712
www.CSTSONline.org