UNIFORMED SERVICES UNIVERSITY

Center for the Study of Traumatic Stress

2012 Annual Report

CELEBRATING 25 YEARS: 1987–2012

Partnerships

As 2012 marks the 25th year of our Center, we want to acknowledge the following institutions that have supported and continue to support our work through research and educational collaborations, through funding and importantly through sharing our mission: to better understand the impact of trauma and inform interventions that can prevent and mitigate its effects on the health of individuals, families, communities and nations, ours and those around the globe.

- American Academy of Child and Adolescent Psychiatry
- American Gold Star Mothers
- American Gold Star Wives
- American Psychiatric Association
- American Psychological Association
- American Red Cross
- Architect of the Capitol
- Armed Forces Retirement Home
- Catholic University of America
- Center for Health Care Research Medical University of South Carolina
- Centers for Disease Control and Prevention
- Columbia University
- Columbia University Mailman School of Public Health
- Cornell University
- Dartmouth University
- Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury
- Deployment Health Clinical Center
- District of Columbia Department of Mental Health
- Dover Air Force Base
- Drexel University
- Embassy of Italy
- Federal Bureau of Investigation
- Florida Department of Health
- Ft. Bragg, NC
- Ft. Hood, TX
- Ft. Lee, VA
- Ft. Stewart, GA
- Geological Survey of Canada, Natural Resources Canada
- George C. Marshall Center for European Security
- Harvard University Medical School
- Harvard University School of Public Health
- Institute of Medicine
- International Society for Traumatic Stress Studies
- Joint Base Lewis-McChord
- Joint Mortuary Affairs Center and School, Fort Lee, VA
- Las Vegas Psychiatric Association
- Massachusetts General Hospital
- Military Child Education Coalition
- Miller School of Medicine of the University of Miami
- National Association of State Mental Health Directors
- National Center for Post Traumatic Stress Disorder of the Department of Veterans Affairs
- National Committee for Employer Support of the Guard and Reserve
- National Fallen Firefighters Foundation
- National Institute for Occupational Safety and Health
- National Institute of Mental Health
- National Institutes of Health
- National Military Family Association
- Office of the First Lady, The White House
- The Alfred P. Sloan Foundation
- The Carter Center
- The Henry M. Jackson Foundation for the Advancement of Military Medicine
- The National Child Traumatic Stress Network
- RAND Corporation
- Rutgers University Cell and DNA Repository
- Rutgers University School of Social Work
- Sesame Workshop
- Substance Abuse and Mental Health Services Administration
- Syracuse University and Syracuse VA Medical Center
- Tragedy Assistance Program for Survivors
- Tulane School of Social Work
- Union Pacific Railroad
- U.S. Air Force
- U.S. Army
- U.S. Army Family Advocacy Program
- U.S. Army Family Programs
- U.S. Army Installation Management Command
- U.S. Army Medical Research and Materiel Command
- U.S. Coast Guard
- U.S. Department of Defense
- U.S. Department of Energy
- U.S. Department of Health and Human Services
- U.S. Department of Homeland Security
- U.S. Department of Justice
- U.S. Department of State
- U.S. Department of Veterans Affairs
- U.S. Navy
- U.S. Postal Service
- U.S. Public Health Service
- University of California, Los Angeles
- University of California, San Diego
- University of Michigan
- University of Michigan Institute for Social Research
- University of Pennsylvania
- University of Virginia
- University of Virginia's Critical Incident Analysis Group
- University of Washington
- Veterans Administration Medical Center of DC
- Walter Reed Army Institute of Research
- Walter Reed National Military Medical Center
- World Health Organization
- Wright State University
- Yale School of Medicine and VA Connecticut Healthcare System
- Yellow Ribbon Reintegration Program
- Zero to Three

From the Director of CSTS

Dear CSTS Colleagues and Friends,

In 2012, the Center for the Study of Traumatic Stress continued to demonstrate its unique commitment to improving the psychological health of those people and populations exposed to trauma and traumatic events. While a great deal of our work continues to focus on research and outreach related to the mental health and resilience of our service members and their families, our Center responded to two tragic community shootings in Colorado and Connecticut. We provided expertise in community behavioral health and recovery, and the provision of real time, educational resources to help leadership and families in the aftermath of these events. Our Center's focus on translational research and knowledge — from the laboratory to the bedside, field, clinic and public policy — has enabled us to assist the Department of Defense and the nation in better responding to and preparing for the psychological and behavioral health effects of traumatic exposure.

Our 2012 Annual Report also marks the 25th anniversary of the Center for the Study of Traumatic Stress. This milestone presents an opportunity to reflect on our Center's history in the context of our ongoing contributions to trauma research, education, consultation and training. We present a special section on the Vision Behind the Center provided to us by the distinguished Dr. Harry Holloway, Professor, Department of Psychiatry of Uniformed Services University. Dr. Holloway's many experiences and contributions both to the University and the Department laid the groundwork for what is now the Center for the Study of Traumatic Stress.

Since July 2009, our Center has been involved as part of a collaborative research network in the largest study of mental health risk and resilience ever conducted among military personnel, *Army Study to Assess Risk and Resilience in Servicemembers* (Army STARRS). In the fall, we briefed the Secretary of the Army, the Chief of Staff of the Army, the Vice Chief of Staff of the Army, and the Deputy Undersecretary of the Army on this research project whose findings will be applied to the Army's ongoing health promotion, risk reduction, and suicide prevention efforts. At the end of 2012, the Army STARRS team had collected data at 70 different Army locations throughout the U.S. and abroad, and more than 100,000 Soldiers had participated.

In 2012, the Center for the Study of Traumatic Stress continued to demonstrate its unique commitment to improving the psychological health of those people and populations exposed to trauma and traumatic events.

The Center's research in neuroscience and the neurobiology of stress has resulted in the discovery of potential biomarkers for PTSD, potential biomarkers for suicide risk, increased understanding of gene expression patterns that underlie biomarkers, and the role of fear memory consolidation and extinction. These studies continue to help us identify and inform new treatments that have the potential to not just alleviate symptoms of trauma-induced disorders, but to prevent and treat those whose symptoms have been resistant to current interventions. We are integrating these research methodologies to support the mental health and resilience of diverse populations from our nation's Guard and Reserve to our research on bereavement with military families and children.

The Center's Child & Family Program continues to

…CSTS will continue working with the many organizations whose collaborations have strengthened our work and its value to the fields of military psychiatry and disaster mental health, and our nation's public health and national security.

provide leadership around the impact of combat stress on military children and families. In 2012, Associate Director and Child and Family Program head, Dr. Stephen Cozza, served as an expert panelist, along with Chairman of the Joint Chiefs of Staff General Martin Dempsey, Mrs. Patty Shinseki and others at 'Helping Military Families Through Challenging Transitions', presented by Sesame Street and moderated by Bob and Lee Woodruff. Work on the Center's groundbreaking study on Military Family Bereavement continues to shed light on this traumatic aspect of combat.

In 2012, CSTS received approval to commence a new project with the U.S. Department of Homeland Security in which the two organizations will collaboratively research, recommend, develop, present, and implement cutting-edge training on Psychological First Aid, Decision Making in High Stress Environments, and Resiliency Assessments for DHS employees.

Unfortunately, 2012 also saw two tragic mass shooting episodes in a movie theatre in Aurora, Colorado and Sandy Hook Elementary School in Newton, Connecticut. In both instances, the Center and its Associate Director, Brian Flynn provided expertise in the form of consultation and public health resources to mitigate the behavioral health consequences of such traumas on individuals, families and communities.

The Center also seeks to extend its trauma expertise to educate and bridge the entire medical community, especially primary care and internal medicine. I am pleased to have been the recipient of the 2012 American College of Physicians William C. Menninger Memorial Award for Distinguished Contributions to the Science of Mental Health. This award is bestowed for distinguished contributions to the science of mental health and was originally supported by the Menninger Foundation. The year ended with our Center receiving the Joint Service Meritorious Unit Award as one of the recognized centers of the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE).

As we complete 25 years of service, The Center for the Study of Traumatic Stress looks forward to fulfilling its ongoing commitment to bring scholarly and research oriented problem solving to the psychological and behavioral health challenges of the Department of Defense and the nation, and to continue working with the many organizations whose collaborations have strengthened our work and its value to the fields of military psychiatry and disaster mental health, and our nation's public health and national security.

Robert J. Ursano, M.D.
Professor of Psychiatry and Neuroscience
Chair, Dept. of Psychiatry, USU
Director, Center for the Study of Traumatic Stress

Robert J. Ursano, M.D., and Carol S. Fullerton, Ph.D., cut a cake celebrating CSTS' 25th Anniversary.

Vision Behind the Center

The Center for the Study of Traumatic Stress (CSTS) was officially established in 1987 to address concerns of the U.S. Department of Defense around the psychological impact and health consequences resulting from the traumatic impact of: 1) the possibility, or actual use, of weapons of mass destruction (WMD) during combat, acts of terrorism or hostage events; 2) combat, peacemaking, peacekeeping, and operations other than war; 3) natural disasters such as hurricanes, tornadoes, or floods; and, 4) more common stress producing events such as physical assaults and motor vehicle, shipboard, or airplane accidents in both the uniformed and civilian communities.

At its quarter century mark, the Center continues to be on the forefront of translational research in neuroscience and the neurobiology of stress, child and family trauma, especially focused on military children and families, education in military and disaster psychiatry, consultation and public education to help individuals, families, communities and the nation prepare for, respond to and recover from traumatic events.

The vision behind the Center is greatly attributable to Dr. Harry C. Holloway, Professor, Department of Psychiatry, Uniformed Services University (USU), and reflects his relationship and work with Dr. David McKay Rioch, his mentor. Dr. Rioch was the first Director of the Division of Neuropsychiatry (Division of NP), Walter Reed Army Institute of Research (WRAIR) and the first to initiate study of the human response to stress using experts in the various neurosciences, behavioral analysis and the social sciences. These experts, among who included Dr. Holloway, had collaborated in work that would characterize how organisms, including human organisms, would respond

Harry C. Holloway, M.D.

to extreme environmental challenges and demands. This work also led to the development of an operational language that could be reliably and validly used to describe, study and respond to the problems created by stress. After serving at WRAIR and its affiliated overseas labs for seven years, Dr. Holloway became the Director of the Division of the NP following Dr. Rioch's retirement. Seven years later in 1978, USU recruited Dr. Holloway as Director of Research in the Department of Psychiatry.

Dr. Holloway's goal and vision was to establish a multidisciplinary group of basic researchers and clinicians in a Center of Stress Research to address the array of open issues concerning prevention of the development of chronic disabilities in response to extreme environmental demands.

This early work also led to a pattern that underlies CSTS's disaster model and work: to understand the impact of disasters, one can study the impact as a whole, or one can take its different parts and study these parts intensively.

Dr. Holloway's Goal and Vision

Dr. Holloway's goal and vision was to establish a multidisciplinary group of basic researchers and clinicians in a Center of Stress Research to address the array of open issues concerning prevention of the development of chronic disabilities in response to extreme environmental demands. The Center was also created to train medical students, house staff and graduate physician fellows to appreciate the risks associated with exposure to horror, overwhelming environmental demands, and injury, and to do so within the organizational context of the medical school's collaborators: trauma surgery, emergency medicine, neurology, epidemiology, pathology, internal medicine and its specialties, preventive medicine, medical psychology, and various basic scientists. Initial problems related to the limitation of mechanisms at the University for funding and staffing research grants. These problems were resolved with the establishment of The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc. (HJF) to support military medical research programs.

Soon thereafter, Dr. Holloway was chosen to be Chair of the Department of Psychiatry. Dr. James Barrett, a research experimental psychologist, joined the department. He initiated a set of laboratory studies that investigated fundamental issues in behavior, neuroscience and neuropharmacology. He and Dr. Holloway worked with others to create an interdisciplinary Department of Neuroscience.

The Stress Center Team Evolves

Dr. Robert Ursano, a psychiatrist and Flight Surgeon, was recruited in 1979 from the USAF School of Aerospace Medicine in Texas. He had been responsible for the psychiatric follow up on U.S. Air Force POWs from the Vietnam War, and he had completed a Fellowship in Medical Education at Yale University School of Medicine. In 1982, Dr. Holloway created the precursor to CSTS referred to as the 'Stress Center' with Dr. Ursano as chief.

Dr. Ursano soon took over leadership of a couple of disaster events and Dr. Holloway knew he had realized his dream — to establish a Stress Center — as Dr. Ursano created and led the field teams. These early teams had collaborators from the Division of NP, WRAIR. Dr. Ursano's first hire was Dr. Carol Fullerton whose training in human development was viewed as highly valuable to Dr. Holloway's perspective of a Stress Center. According to Dr. Holloway, people who study human development are multi-variable people. "They look from multiple domains when they try and look at a problem rather than eliminate them, which many laboratories do, calling them noise." In fact, Dr. Holloway insisted that the overall teaching of medical students be developmental because risk is critically determined by age and social status.

Dr. Fullerton's credentials in human development and psychology aligned with changing risk with changing age and development.

In the spring of 1985, the Stress Center team was working with WRAIR in response to the crash of Arrow Air Flight 1285 carrying U.S. troops from Cairo, Egypt via Germany and Newfoundland to their home base in Fort Campbell, Kentucky. Shortly after takeoff from Gander en route to Fort Campbell, the aircraft crashed and burned killing all 256 passengers and crew on board. Responding to this disaster involved collaboration with WRAIR who introduced the Center to a new approach and tool that would inform CSTS's disaster work for years to come. An assembled group deploying to the disaster called the epicon team, following a model previously developed at WRAIR's Department of Epidemiology, would collect data in the field by observation as well as by questioning, surveying, and measuring.

This early work also led to a pattern that underlies

In the spring of 1985, the Stress Center team worked with WRAIR in response to the crash of Arrow Air Flight 1285, killing all 256 passengers and crew *(stock photograph).*

CSTS's disaster model and work: to understand the impact of disasters, one can study the impact as a whole, or one can take its different parts and study these parts intensively. The Stress Center began looking at what happened to people who stood guard over the remains; what were the effects of dead bodies on them? The Stress team also looked at the community and what it meant to get a real surge in terms of what happened to its adolescents, its families as they used up resources and became volunteers. Another principle that developed in 1987 out of the Center's chemical/biological warfare studies was the idea of bringing together "thought groups" from multiple disciplines. The Center began having meetings of experts — usually about 50 people from cross-disciplinary areas. It was not uncommon for an individual to ask, "Why am I here to study chemical warfare when I study astronauts?" The answer reflected the multidisciplinary purpose: that attendee understood how people behaved in contained environments.

Information into Action

In addition to science and research, the Center has always been focused on application or what might today be referred to as information that is 'actionable' — the purpose of 'application' is to produce something that can be used, e.g. the Center shares its observations with senior leadership to help them understand how to minimize traumatic stress. This is the public health approach, which is looking for interventions that can be used at the community level, at the family level and at the individual level before, during, and after a traumatic event.

Central to the CSTS and integral to Dr. Holloway's legacy is a vision of interdisciplinary studies and multidisciplinary collaborations organized to address critical research questions using techniques from the bench to observational studies of field operations. The vision behind the Center is a dynamic vision that continues today as dedicated individuals address complex problems that require complex science and an ability to communicate across diverse disciplines and organizations.-

The Center's Work

The Center:

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

In addition to science and research, the Center has always been focused on application.

Military Psychiatry

The Center, through its affiliation with the Department of Psychiatry of Uniformed Services University, has since its establishment in 1987, institutionalized our nation's knowledge of military psychiatry as a field of academic and medical study. The Center has expanded its contributions 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.

Neuroscience and the Neurobiology of Stress

The Center conducts pioneering, translational research in neuroscience and the neurobiology of stress. A major focus of this research, which applies basic science to clinical populations, is improving the lives of our nation's service members post deployment around military unique health issues, especially posttraumatic stress disorder (PTSD), mild traumatic brain injury (mTBI) and suicide. 2012 saw expansion of the Center's laboratory-based research in the neurobiology of stress, and also its clinical and epidemiologic studies, which encompass psychopharmacology, the application of cutting-edge medical technology and studies that address the modifiable risk and protective factors of suicide and suicide ideation.

Biomarker Research

The Center's neuroscience research has resulted in the discovery of potential biomarkers for PTSD, potential biomarkers for suicide risk and increased understanding of gene expression patterns that underlie biomarkers. These findings may 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 (with and without PTSD or other diseases) will be important resources for scientists attempting to replicate and validate initial studies.

In 2012, Center neuroscientists found that certain gene families are involved in human brain development as well as altered fear behavior in animals. Research utilizing data from postmortem animal brain tissue and an animal model of high and low fear demonstrated that endocanabinoid receptor 1 (CBI) expression levels gradually decrease in the prefrontal cortex (PFC) during development, and altered in the brains of mice selectively bred for high and low fear. These studies also found that a group of mitochondrial genes undergo a consistent up-regulation in the PFC during development and play a role in the fear-related behavior. The development and use of high and low-fear animals models in order to understand the neuro-molecular basis for resilience, and the ability to recover from highly stressful or traumatic experiences, has been pioneered by Center scientist, Luke Johnson. Dr. Johnson's work was featured in an article in *Nature, International Weekly Journal of Science*, which was distributed at the Society for Neuroscience conference in New Orleans.

INTRuST Consortium Research

The Center plays an important research role through participation and leadership in The *National Capital Area Integrated Clinical Study Site,* an established network of

The Center's neuroscience research has resulted in the discovery of potential biomarkers for PTSD, potential biomarkers for suicide risk and increased understanding of gene expression patterns that underlie biomarkers.

clinician-researchers at Walter Reed National Military Medical Center (WRNMMC), the D.C. Veterans Administration Hospital and the Armed Forces Retirement Home. This research is initiating clinical trials for novel medications and psychotherapy treatment for PTSD and other combat-related disorders. The site is one of 10 such study sites across the nation which comprise the INTRuST Consortium for Psychological Health and TBI.

2012 saw advances in some of the network's important projects. Enrollment was completed for the Consortium's Transcranial Magnetic Stimulation (TMS) study (described below) and its Acceptance and Commitment Therapy (ACT), a mindfulness-based psychotherapy for combat veterans with deployment-related mental illness. The Consortium's biorepository enrolled subjects with PTSD, TBI and healthy controls in an ongoing effort to identify biomarkers for these diseases. The National Capital Area site's Brain Indices protocol, which seeks to identify electrophysiological test, psychological test and brain imaging predictors of PTSD risk in persons with TBI, continued enrollment at Walter Reed National Military Medical Center and expanded to a second enrollment site and testing laboratory at Fort Belvoir's Army Hospital.

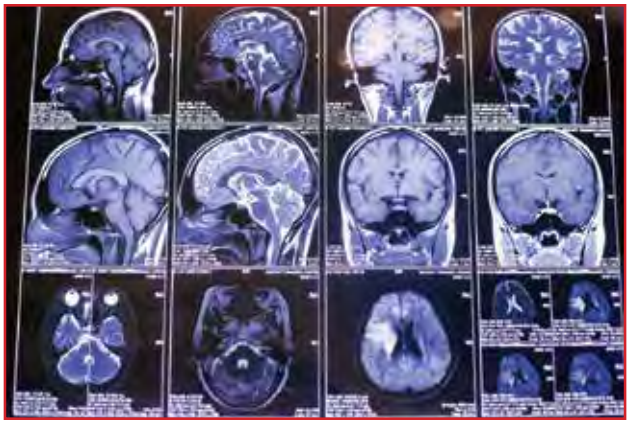
The Veterans Administration's Office of Research and Development has recognized the importance of a PTSD biorepository—a collection of various biological specimens such as blood and saliva from donors with PTSD and other deployment-related illnesses, as well as healthy controls, and a larger national biorepository for all neuropsychiatric illnesses. In 2012, as part of its Traumatic Stress & Biomarkers in a Military Population Study, the Center continued to collect survey data, blood and saliva from active duty soldiers returning from and deploying to Afghanistan, as well as expanded collections to include activated Reserve populations from California and Guam. The Center also continued with scientists at the NIMH and the Stanley Foundation to identify and collect post-mortem brain tissue from persons with PTSD.

Reserve Component Research

The Center is engaged in extensive research with the Reserve Component. In collaboration with Dr. Sandro Galea of Columbia University, CSTS is conducting a nationwide longitudinal research project on the health and mental health of National Guard and Reserve service members, an at risk population that has been understudied. The study addresses the epidemiology and the trajectory of posttraumatic stress, deployment stress, health risk behaviors and health care utilization in National Guard and Reserve. The third wave of annual data collection was finished in 2012, and a fourth wave is planned for 2013.

Innovative Medical Technologies

The Center is conducting research that involves the use of innovative medical technologies. In collaboration with the Medical University of South Carolina and the INTRuST Consortium, the Center has been working on a Pilot Safety and Feasibility Study of High Dose Left Prefrontal Transcranial Magnetic Stimulation (TMS) for the rapid stabilization of acute suicidal behavior. TMS, an FDA-approved therapy for treatment of depression, involves the application of a strong, pulsing magnetic field



to an individual's head, thus reaching his or her cerebral cortex. This study will examine the effectiveness of TMS for treatment of PTSD and suicidal behaviors. Enrollment at both sites continued through 2012 and has recently been completed.

Using an animal model of drug addiction, intravenous drug self-administration, in combination with a state-of-the-art technology, non-invasive positron-emission tomography (PET) and magnetic resonance (MR) brain imaging, Center scientists are attempting to identify molecular and cellular markers that may characterize co-morbid substance abuse and anxiety disorders. Utilizing other behavioral measures such as Pavlovian fear conditioning and acoustic startle reflex/pre-pulse inhibition in rodents, they are investigating the interaction between morphine dependence and fear learning/extinction. In 2012 they found that spontaneous withdrawal from chronic morphine might have opposite effects on anxiety and fear behavior. Understanding the effects of drug abuse on the various symptoms of PTSD has implications for clinicians treating patients with substance use disorders and PTSD.

In 2012 CSTS launched a research study, Daily Diary Assessment of Post Traumatic Stress Symptoms in US Military Service Members. This study provides information in real time on the relationship of posttraumatic stress symptoms and psychiatric disorders (e.g., PTSD, depression), sleep, pain, health risk behaviors (e.g., alcohol and tobacco use), and other areas of health and functioning in active duty service members. This study will provide a new perspective on identifying PTSD and other symptoms and behavioral patterns and the environmental influences that may foster more effective treatments.

This important project will increase our understanding of the relationship between the daily variability of posttraumatic stress symptoms and mental health conditions as well as their trajectory of illness in soldiers.

In the pilot phase approximately 50 service members will be recruited and complete daily assessments using paper questionnaires. In phase II, approximately 350 service members will complete assessments using electronic tablets programmed with sophisticated applications developed through the collaboration of CSTS and the National Center for Telehealth and Technology (T2). Completed assessments are instantaneously uploaded to a secured server for real time monitoring of assessment compliance and data retrieval.

This important project will increase our understanding of the relationship between the daily variability of posttraumatic stress symptoms and mental health conditions as well as their trajectory of illness in soldiers. The study has implications for the feasibility and benefits of using electronic EMA methods in psychiatric research, and in particular with soldiers.

Army STARRS

The Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS) is a five-year project to investigate risk and protective factors for suicide, suicide-related behaviors, and other mental health issues. Army STARRS involves several studies whose goals are the same — to identify factors that help protect a soldier's mental health, and factors that put a soldier's mental health at risk. Since the project began, the research team has successfully recruited more than 100,000 soldiers at 70 different Army locations throughout the U.S. and abroad. At the end of 2012, data collection activities for the two largest studies were wrapping-up. One involved approximately 55,000 new soldiers who completed questionnaires, performed neurocognitive tests, and provided blood samples during their first week of Army service. The other involved questionnaires from more than 40,000 soldiers at various stages of their careers across the entire Army. Researchers also conducted 460 clinical interviews with soldiers at eight locations for a study to calibrate the accuracy of diagnostic measures used in other Army STARRS studies. Data collection continues for a longitudinal study of approximately 10,000 soldiers

STARRS
Study to Assess Risk and Resilience in Servicemembers

Army STARRS will not only enhance the health and resilience of our soldiers, but also will benefit our nation as a whole…

who completed questionnaires and provided blood samples shortly before deployment and who will be re-contacted at three time-points after deployment. Recruitment continues for two case-control studies: one involving soldiers who committed suicide and the other involving soldiers who were hospitalized for a suicide attempt. The research team also has been conducting an historical study of more than 1.6 million soldiers on active duty from 2004 to 2009 by compiling and analyzing complex data from more than 1.1 billion de-identified health and administrative records. As data collection winds down in 2013, the research team will shift its focus to the equally-challenging phase of preparing and analyzing the complex data-sets for each study based on a wide array of variables created from the many different types of data collected. As findings become available, they are being reported to senior Army leadership so that the Army may apply them to its ongoing health-promotion, risk-reduction, and suicide-prevention efforts. Army STARRS will not only enhance the health and resilience of our soldiers, but also will benefit our nation as a whole because the findings will have widespread public and behavioral health implications.

Mortuary Affairs Soldiers: Early Intervention and Altering Barriers to Care for Traumatic Stress and PTSD (the TEAM Study)

Mortuary Affairs Soldiers: Early Intervention and Altering Barriers to Care for Traumatic Stress and PTSD (known as TEAM; Troop Education for Army Morale) is a novel stress management and resilience building early intervention program designed to improve post-deployment readjustment in U.S. Army Mortuary Affairs (MA) soldiers—a group at high risk for psychological problems. An educational intervention, TEAM is based on the principles of Psychological First Aid (PFA), an evidence-informed framework for behavioral health intervention to reduce the initial distress caused by traumatic events and to facilitate positive adaptation. PFA promotes the following five principles: safety (physical and psychological), calming, connectedness, self-efficacy, and hope/optimism.

TEAM is a group intervention offered to MA soldiers as well as their spouses to foster an integration of support resources within the unit (buddy care) and home (spouse support) environments. Recruitment is conducted within weeks after return from deployment and participation is voluntary. Soldiers who agree to participate in the study are randomized into either the intervention (workshop) group or the control group, which receives "usual services" offered to soldiers. The intervention group receives monthly 2-hour workshops at 2, 3, 4, and 7 months post deployment, educational handouts, and access to a specially designed intervention website. Assessments are made in both groups at 2, 3, 4, 7, and 10 months post deployment. Study aims include assessment of the effectiveness of TEAM on distress, disorder (e.g., PTSD, depression), psychological well-being, health risk behaviors (e.g., alcohol or tobacco use), work function, marital conflict, and barriers to health care utilization.

Research establishing the effectiveness of TEAM began in 2008 and will continue into 2014 making TEAM one of the longest continuous research studies, and one of the few intervention studies at CSTS. Findings from TEAM will inform other early interventions with military and civilian populations.

Joining Forces Joining Families is a quarterly newsletter published by The Center's Family Violence and Trauma Project (FVTP). In its seventeenth year, FVTP provides support via briefings, papers and staff studies to inform Army leadership and the U.S. Army's Family Advocacy Program of the scientific and medical aspects of child and spouse abuse.

2012 Child and Family Program Activity and Achievements

Since its establishment in 2006, the Child and Family Program (CFP) of the Center for the Study of Traumatic Stress 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. Throughout 2012, Dr. Stephen J. Cozza, Associate Director, CSTS Child & Family Program, provided his expertise to DoD leadership and national organizations and stakeholders in military family health and trauma.

Among the many highlights of 2012, Dr. Cozza served as an expert panelist, along with Chairman of the Joint Chiefs of Staff General Martin Dempsey, Mrs. Patty Shinseki and others at 'Helping Military Families Through Challenging Transitions', presented by Sesame Street Workshop and moderated by ABC's Bob Woodruff and his wife, Lee. Key findings were announced on the impact of Sesame Street's Military Families Initiative, and a compelling analysis conducted by The Military Families Research Institute, Russell Research and CSTS was unveiled. Dr. Cozza and his research team also provided briefings throughout the year to Four-Star Wives, and the Gold Star Wives Annual Convention in Fairborn, Ohio on topics including the Center's role in the National Intrepid Center of Excellence (NICoE) and the Military Family Bereavement Study described below.

Dr. Cozza served as an expert panelist, along with Chairman of the Joint Chiefs of Staff General Martin Dempsey, Mrs. Patty Shinseki and others at 'Helping Military Families Through Challenging Transitions', presented by Sesame Street Workshop.

The National Military Bereavement Study

In 2011, CFP received funding to conduct the National Military Family Bereavement Study, 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) is a nationwide study that 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. The study examines the psychological, physical and/or behavioral outcomes of the grieving process, and how family members' pre-existing psychological and physical health, support or resources (family, community) and/or genetic factors serve as risk or protective factors in the grieving process.

This study uniquely combines psychosocial measures and neuroscience methodologies. An optional part of the study allows interested participants to provide a saliva sample for biomarker analysis. In 2012, data collection for all areas of the study started. Some 519 participants have completed the Phase 1 questionnaire; 191 saliva kits have been returned for analysis; 62 families have been identified as eligible for Phase 2 interviews and 22 of these interviews have been conducted; 14 focus groups have also been conducted. During 2013, data collection for Phase 1, Phase 2 and Focus Group data will continue, and a manuscript that describes the deceased service member population will be submitted for publication. Over the

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

next three years, CSTS researchers will continue to work actively with researchers from other academic institutions, including Columbia University, Harvard University, University of Michigan, and the University of California, Los Angeles.

Deployment Family Stress: Child Neglect and Maltreatment in U.S. Army Families

Another key CFP study underway is Deployment Family Stress: Child Neglect and Maltreatment in U.S. Army Families. The goal of this in-depth study of child maltreatment and neglect among Army personnel is 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. This 4-year study has made significant progress during 2012, culminating in the completion of all data collection across 26 Army installations in the United States.

Data from 400 closed and substantiated child neglect records has been collected from 4 Army installations. A total of 1,088 questionnaires have been completed by telephone, online, or in person. These questionnaires include information from Army Community Services (ACS) staff and/or other service providers, and from voluntary participants at the commissary. A review of community resources has been completed for 26 installations and 184 neighboring communities.

Much of the activity during the 2012 calendar year was related to advancing the completion of manuscripts to be submitted for publication. The first manuscript (currently in preparation) will describe characteristics of Child Neglect in the U.S. Army, including demographics of offenders, children and families, as well as classification of neglect using the Modified Maltreatment Classification System.

FOCUS-CI: A Preventive Intervention with Children and Families of the Combat Injured

Families OverComing Under Stress - Combat Injury (FOCUS-CI) is a randomized controlled trial that tests the effectiveness of a newly developed family-centered, strength-based intervention for severely combat injured service members and their families. The FOCUS-CI intervention provides families support through integrated instruction, coaching and skill-building in the areas of emotion regulation, problem-solving, communication, and goal-setting. The study is conducted at Walter Reed National Military Medical Center (WRNMMC), San Antonio Army Medical Center (SAAMC), and is expand-

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

Families OverComing Under Stress – Combat Injury (FOCUS-CI) is a randomized controlled trial that tests the effectiveness of a newly developed family-centered, strength-based intervention for severely combat injured service members and their families.

ing to The University of North Carolina at Chapel Hill. Families are followed for two years to assess intervention impact on key aspects of the long-term recovery trajectory: child distress and functioning, parent distress and functioning, and family functioning and injury communication. December 2012 marked the successful launch of the study into the field, as active family enrollment is under way. Findings of this study are expected to validate the usefulness of the FOCUS-CI model in the context of the complex dynamic that often exists uniquely within military families, and particularly relating to those challenges resulting from combat injuries, including traumatic brain injury (TBI). The FOCUS-CI intervention is designed to engage the injured service members and their families as early as in-theater hospitalization.

The innovation of the FOCUS-CI model incorporates customizable modularized family care management sessions, remote access to web-based, interactive tools, and building connections to a strong network of community resources — all of which have been developed to assist each participating family member (including children) in understanding and managing his/her psychological health during what can be an extremely difficult period of transition. This study will help define new pathways to stay connected with combat-injured military families post-deployment and offer innovative tools to promote and sustain total quality of life.

CSTS Child and Family Program continues to demonstrate its commitment to improving the psychological and behavioral health of our nation's military families and children through its research, educational activities and products and extensive consultative outreach to all levels of DoD, the federal government, and diverse stakeholders. CFP work and impact is strengthened by its collaborations with National Child Traumatic Stress Network (NCTSN), Zero to Three, Military Child Education Coalition (MCEC) and National Military Family Association (NMFA), The Tragedy Assistance Program for Survivors (TAPS), Army Survivor Outreach Services (S.O.S), and its interface and proximity to the National Intrepid Center of Excellence (NICoE) and WRNMMC.

Disaster Behavioral Health Response, Education, Planning

Since its establishment in 1987, the Center for the Study of Traumatic Stress (CSTS) has played an important role nationally and internationally in helping communities respond to and recover from the psychological and behavioral health effects of exposure to many types of traumatic events. These events range from natural disasters such as hurricanes, earthquakes and tsunami, to human made disasters such as the Gulf Oil Spill, terrorist attacks such as 9/11, and community violence. During 2012, the Center provided consultation and public education around two tragic community events — the movie theatre shootings in Aurora, Colorado and the mass school shooting at Sandy Hook Elementary School in Newton, Connecticut.

Drawing upon his expertise in helping communities respond to and recover from traumatic events, CSTS Associate Director for Health Systems, Dr. Brian Flynn, reached out to the National Association of State Mental Health Program Directors in the aftermath of the Aurora, Colorado movie-theater shooting that occurred on July 20, 2012.

CSTS published and disseminated the following information to support responders to this tragic event: *Predictable Reactions to Trauma/Resilience, What Do We Know about Mental Illness and Violence?, Restoring a Sense of Safety in the Aftermath of a Mass Shooting: Tips for Parents and Professionals.* The latter fact sheet was featured on the American Medical Association website. Dr. Flynn also assisted in the production of the CSTS fact sheet on *Grief Leadership* that was widely disseminated and continues to be a valued document for community disasters.

Dr. Flynn actively consulted with the State of Connecticut following the Sandy Hook Elementary School shootings that occurred on December 14, 2012 in Newtown, Connecticut. He provided phone consultation around preparation and process for official death notification, advised the State on management of the influx of volunteers, and leadership interaction with grieving families and the media. It was later reported that these consultations were very helpful; the Center's resources and his expertise were used extensively. The Center's expertise is also informed by compassion, often from direct exposure to disaster. A *Capital Gazette* article, "Anne Arundel Schools Respond to Tragedy in Connecticut," quotes Dr. Flynn as saying, "This brought me back, right back to Columbine, especially after hearing reports about parents being notified. It's such a tragedy. I've seen the faces of those parents before. I know I can't even imagine."

In response to Superstorm Sandy that occurred in the fall of 2012, LCDR Jennifer Bornemann deployed as a member of one of the United States Public Health Service Access Teams to help hurricane victims. LCDR Bornemann assisted the case management and social services staff at Bayshore Community Hospital in Holmdel, NJ with patient assessments, discharge planning and staff resiliency.

National security is another area in which the Center provides its expertise in disaster behavioral health. In September, CSTS received approval to begin a new project with the U.S. Department of Homeland Security (DHS) in which the two organizations will collaboratively research, recommend, develop, present, and implement cutting-edge training for DHS employees.

Public Education Activities 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. The Center hosts professional conferences, develops fact sheets, often in real time, in response to national and international disasters, creates innovative health education 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.

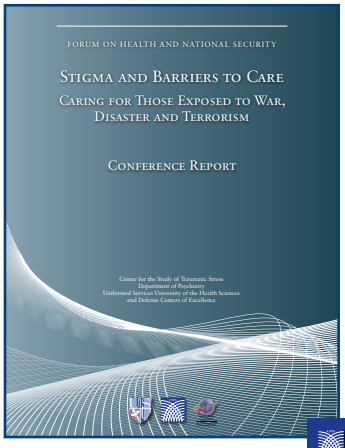
In collaboration with the USUHS Neuroscience Program, the Center hosted the *7th Annual Amygdala Stress and PTSD Conference* featuring Dr. Sumantra Chattarji from the National Center for Biological Science, India, Dr. JoAnn Difede from Cornell Medical College, Dr. Sheena Josselyn from Toronto's Hospital for Sick Children, Dr. Jordan Smoller from Harvard Medical School, and Dr. Eric Vermetten from the University Medical Center, Utrecht, The Netherlands. Over 300 scientists, leaders and professionals attended the conference, *Recovery from Stress*.

The Center also published an important report from its Forum on Health and National Security conference, *Stigma and Barriers to Care: Caring for Those Exposed to War, Disaster and Terrorism*, which was widely distributed.

2012 saw a number of fact sheets developed and disseminated by the Center. Its *Courage to Care* series, in its 8th year of continuous publication, included *The Doctor-Patient Relationship: Opportunities and Risks of New Communication Technologies*. Researchers at the National Defense University used a number of *Courage to Care* resources in a workshop on Military Psychology at the American Psychological Association meeting.

The Center responded with public health education resources to three community tragedies: two mass shootings and one, major natural disaster. The Center disseminated a number of fact sheets in the aftermath of the mass shootings in Colorado and Connecticut including two important resources to support community leaders: *Grief Leadership: Leadership in the Wake of Tragedy and Leadership In Disasters*. In response to Hurricane Sandy, the Center distributed these important fact sheets: *Safety, Recovery and Hope After Hurricane Sandy: Helping Communities and Families; Sustaining Caregiving and Psychological Well-Being While Caring for Disaster Victims,* and*; Information for Relief Workers on Emotional Reactions to Human Bodies in Mass Death.*

The Center's public health education resources are highly regarded by local and national organizations that recognize the Center's expertise in the psychological effects and health consequences of traumatic events in both the military and civilian communities.



The Center published an important report from its Forum on Health and National Security conference, Stigma and Barriers to Care: Caring for Those Exposed to War, Disaster and Terrorism, which was widely distributed.


Center for the Study of Traumatic Stress

Safety, Recovery, and Hope After Hurricane Sandy: Helping Communities and Families

In response to Hurricane Sandy, the Center distributed three important fact sheets, including Safety, Recovery and Hope After Hurricane Sandy: Helping Communities and Families.

2012 Funded Grants

Study	Funding Institution
Family Violence and Trauma Project III	U.S. Army
Clinical Study Site for PTSD and TBI (sub-award)	UC San Diego
Addressing the Needs of Children and Families of Combat Injured	CDMRP
Mortuary Affairs Soldiers: Early Intervention and Altering Barriers to Care for Traumatic Stress and PTSD	CDMRP
Deployment Family Stress: Child Neglect and Maltreatment in U.S. Army Families	CDMRP Columbia University
PTSD Trajectory, Co-morbidity, and Utilization of Mental Health Services among National Guard Soldiers	CDMRP
CSTS — Program Grant 2013	DCoE
FOCUS-CI Preventive Intervention with Children and Families of Combat Injured	CDMRP
Brain Indices of Risk for PTSD after Mild TBI	CDMRP
Initial Randomized Controlled Trial of Acceptance and Commitment Therapy (ACT) for Distress and Impairment in OEF/OIF Veterans	CDMRP
A Pilot Safety and Feasibility Study of High Dose Left Prefrontal Transcranial Magnetic Stimulation	UC San Diego
A Proof-of-Concept, Double-blind, Randomized, Placebo-Controlled Study of Ganaxolone in PTSD	UC San Diego
Modifiable Risk and Protective Factors for Suicidal Behaviors in the U.S. Army	NIMH
Modifiable Risk and Protective Factors for Suicidal Behaviors in the U.S. Army — ARRA	NIMH
Modifiable Risk and Protective Factors for Suicidal Behaviors in the U.S. Army — Supplement	NIMH
Impact of Service Member Death on Military Families: A National Study of Bereavement	CDMRP
The Injury and Traumatic Stress(INTRuST) CONSORTIUM Biorepository	UC San Diego
Riluzole Augmentation Treatment for Complicated PTSD (MOMRP)	U.S. Army
Resilience Building for Homeland Security	DHS
Personally Owned Firearms	H.A./DOD
Behavioral-Based Predictions of Workplace Violence in The Army STARRS	Harvard University

2012 Publications

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Recognition

Dr. Goldenberg, Lt Col Hamaoka, LCDR Santiago and Dr. McCarroll's iCollaborative submission was selected as a winner of the MedEdPORTAL-sponsored Call for Culturally Competent Training/Learning Modules for Treatment of U.S. Service Members and their Families at the 2011 Association of American Medical Colleges Annual Meeting. Their winning submission was titled, "Basic Training: A Primer on Military Life and Culture for Health Care Providers and Trainees."

As the recipient of the 2012 American College of Physicians William C. Menninger Memorial Award for Distinguished Contributions to the Science of Mental Health, **Dr. Ursano** presented a lecture at the ACP Annual Meeting. This award is bestowed for distinguished contributions to the science of mental health and was originally supported by the Menninger Foundation.

Dr. Duncan's paper, "Evaluation of traumatic brain injury: Brain potentials in diagnosis, function, and prognosis," was one of 2011's 25 top downloaded articles from papers published in all years in the International Journal of Psychophysiology.

Nancy Vineburgh, an invited military health communications expert who heads up the Center's Office of Public Education and Preparedness, took part in the assessment panel and process that led to the recently announced RAND publication of "Assessment of the Content, Design, and Dissemination of the Real Warriors Campaign."

CSTS, along with DHP, DHCC, T2, DVBIC, received the Joint Service Meritorious Unit Award for DCoE for January 2010–December 2012. Each center received a copy of the award signed by Defense Secretary Panetta.


Citation
Joint Meritorious Unit Award

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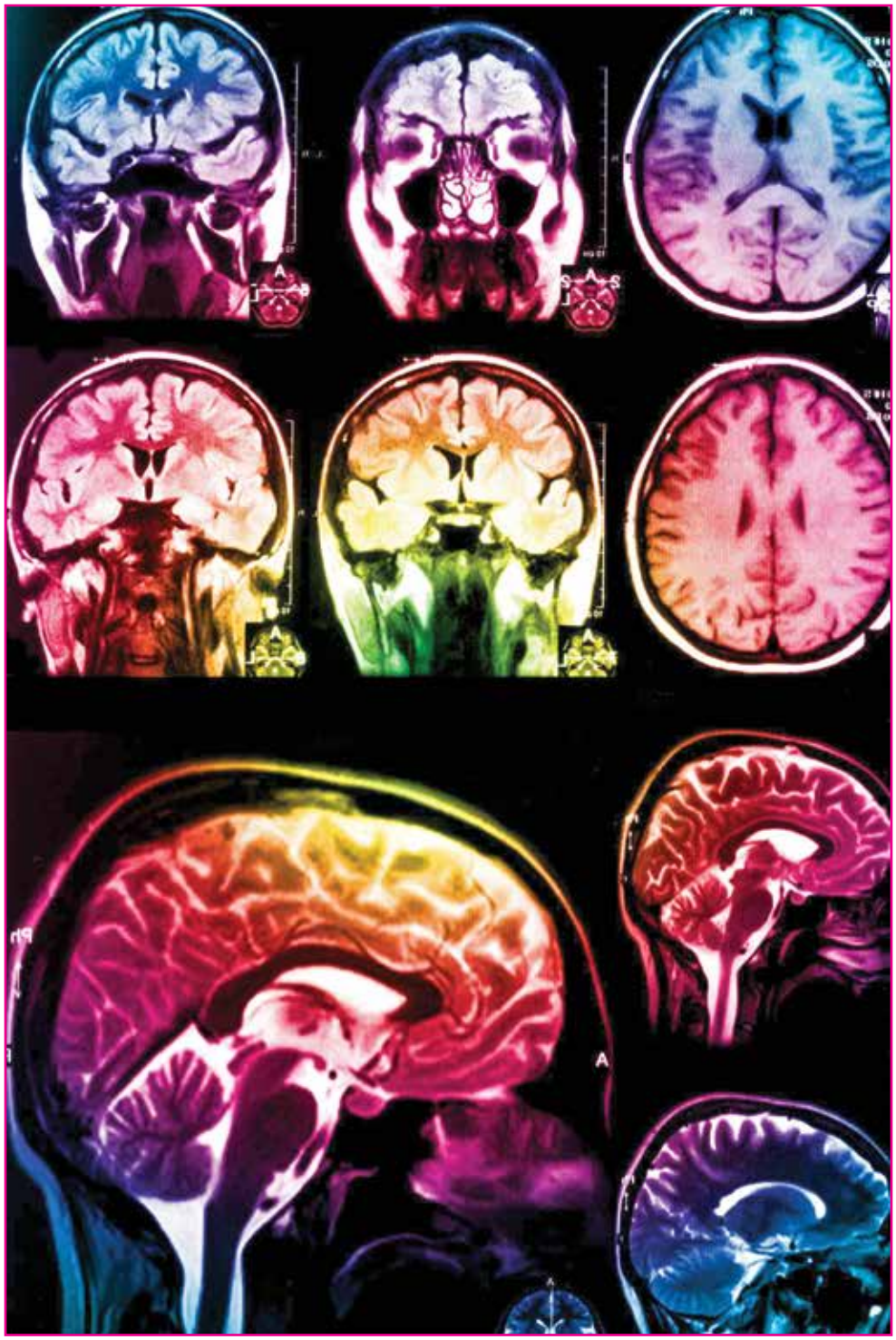

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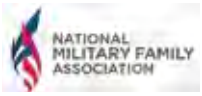

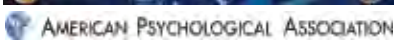

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