

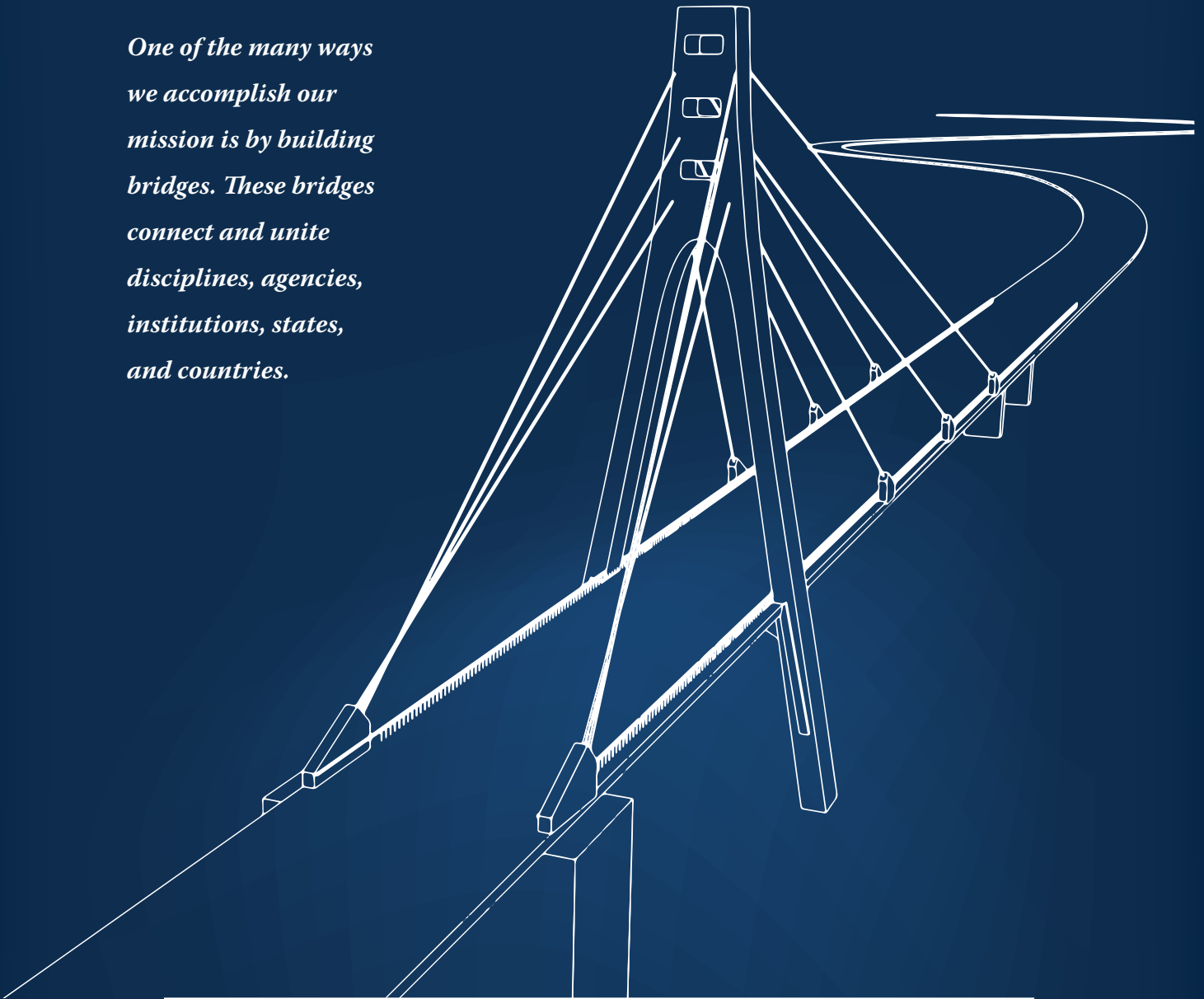
Center for the Study of Traumatic Stress

Building Bridges Since 1987

2016 Annual Report



*One of the many ways
we accomplish our
mission is by building
bridges. These bridges
connect and unite
disciplines, agencies,
institutions, states,
and countries.*



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From the Director

Dear Center Colleagues and Friends,

The Center for the Study of Traumatic Stress (CSTS) is an integral part of the Department of Psychiatry of the School of Medicine of the Uniformed Services



University (USU). CSTS's activities support the USU Strategic Framework and the mission of the Department of Defense. The mission of CSTS is to mitigate the impact of trauma from exposure to war, disasters, terrorism, community violence and public health threats. We achieve

our mission through leadership, education and training, research and scholarship, service and outreach, and global health engagement to maintain readiness. In accomplishing our mission, we enhance national security and serve an essential role for the Department of Defense and the nation. We have been successfully fulfilling our mission for the past 29 years, since the Center was established in 1987.

CSTS bridges multiple disciplines, groups and strategies for change and health. We bridge the sciences from cellular to circuits and synapses to neurons. We link across disciplines and fill gaps in knowledge and communication, while creating new partnerships. We build these bridges in laboratories, in classrooms, in our communities, across our nation, and around the world. These bridges connect and unite disciplines, agencies, institutions, states, countries and most importantly people. We build these bridges through research, outreach, training, education, consultation, intervention and leadership. Our research bridges the divide between factors that place people in danger of harm and those that keep people safe in times of war, disasters and terrorist events.

The bridges we build are part of what makes the Center unique. For example, we bridge military psychiatry and disaster psychiatry. Our Center has

helped define and advance the integration of these two separate but interrelated fields. We connect findings from scholarly mental health research to real-world problem-solving in order to address the mental and behavioral health problems of those exposed to war, disaster and other traumatic events. The Center is dedicated to research in translational science to bridge the gaps between laboratory science and applied health care. These bridges translate knowledge into applications in the neuroscience and neurobiology of stress and trauma.

The Center has a broad reach with a focus on health issues of special interest to the military including posttraumatic stress disorder (PTSD), mild traumatic brain injury (mTBI), suicide and suicide-related behavior. CSTS helps inform our nation's policies and responses to the impacts of exposure to trauma from disasters, both man-made and natural. We are a multi-disciplinary and collaborative team of scientists, educators, clinicians and leaders who provide the research, teaching, outreach, consultation and leadership to advance the mission and our goals.

Throughout 2016, the Center broadened and shared its knowledge base. Looking ahead, we continue to build bridges to the future by training

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and mentoring the next generation of dedicated scientists and leaders who will continue to carry our mission forward.

The Center continues to provide rapid consultation, education and knowledge support to personnel who responded to crises around the nation. In 2016, these events included:

- the water crisis in Flint, Michigan
- the floods in Louisiana
- Hurricane Matthew which impacted the southeastern United States
- the warehouse fire in Oakland, California
- the mass shooting at the Pulse Night Club in Orlando, Florida

This Annual Report includes the many contributions we are making to enhance psychological

health, recovery and prevention of the consequences of trauma on individuals, families, communities and the nation in both military and civilian populations. This work builds on the importance of trauma informed care for our health care systems.

On behalf of everyone at CSTS, I would like to extend our appreciation to all our colleagues and friends who have collaborated with us and supported our work throughout this past year.

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

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Serving our nation since 1987

First CSTS Neuroscience Fellowship Awarded in 2016

In 2015, the Center initiated a Pre-doctoral Fellowship Award for USU neuroscience doctoral students to foster the development of the next generation of scientists and investigators who will tackle problems relevant to the CSTS mission. The Center awarded its first annual pre-doctoral fellowship in 2016.

This award is in support of a USU graduate student for innovative basic or clinical research studies leading to a PhD degree while addressing the primary mission of the CSTS, namely, to research the health consequences of trauma, disaster, and terrorism. The award provides two years of salary support while the pre-doctoral student works on their doctoral studies.

The 2016 CSTS Pre-doctoral Fellowship Award recipient was Francis T. Djankpa for his project “The KCC2 influence on neuronal migration in a ferret model of cortical dysplasia.”

Words from Francis Djankpa

“I am a fourth year graduate student in the neuroscience program at USU with a focus on neocortical development and associated errors of brain malformation. I started my career studying the broad aspects of animal life for my bachelor’s degree in Zoology in 2005 at the University of Ghana. I then studied the gener-



al functions of human systems for my MPhil degree in physiology in 2009 at the University of Ghana. As part of my MPhil thesis, I assessed the sensitivity and efficacy of a neurothesiometer as an alternative to the tuning fork in the clinical diagnosis of peripheral neuropathy in diabetic clinics. In 2010, I accepted an appointment as a physiology lecturer in a newly established medical school (School of Medical Sciences, University of Cape Coast, Ghana) where I taught undergraduate students in the Medical and Allied Health Sciences programs for two years. I served as part of a team that investigated the effects of natural dietary sup-

plements on obesity and diabetes using animal models. Because of my passion to reach out to rural communities, in 2010, I established a non-governmental organization (Nterm-Ghana, www.ntermghana.com). Under my leadership, Nterm-Ghana has been reaching out to many communities with health, education and other development projects. I plan to pursue my ultimate goal of teaching, conducting research and mentoring students in the neurosciences and related fields. I also hope to one day lead a nationwide campaign in Ghana to develop the study of neurosciences in collaboration with other international organizations.”

This award is in support of a USU graduate student for innovative basic or clinical research studies leading to a PhD degree while addressing the primary mission of the CSTS, namely, to research the health consequences of trauma, disaster, and terrorism.

Our Mission

As an integral part of USU, CSTS's activities support the USU Strategic Framework and the mission of the Department of Defense (DoD). CSTS is committed to advancing trauma-informed care. We are dedicated to furthering the nation's understanding of the impact of trauma on individuals, families and communities. The Center is part of our nation's federal medical school at USU and the Center's mission is aligned with the needs of the DoD and the nation, and is well-positioned to rapidly respond to DoD mission-relevant activities.

The Center's work includes a broad range of trauma exposures: combat, terrorism, natural and human-made disasters, public health threats, and humanitarian operations. CSTS has been

involved in nearly every major disaster our nation has experienced in the past nearly 30 years. The Center helps to ensure that behavioral health is addressed in the face of public health threats, disaster planning and disaster recovery.

Mitigating the effects of disaster and trauma in military and civilian populations is part of the effort to foster community and national resilience. The Center informs and educates community, regional, state, national and global stakeholders in government, industry, healthcare, public health, and academia. CSTS contributes to advancing trauma-informed care by providing leadership in research, education, training, consultation, global health, and service.



Research

RESEARCH ON SERVICE MEMBERS

Study to Assess Risk and Resilience in Servicemembers — Longitudinal Study (STARRS-LS)

[formerly *Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS)*]

STARRS-LS

Study to Assess Risk and Resilience in Servicemembers - Longitudinal Study

Army STARRS (2009-2015) and now STARRS-LS (2014-2019) were designed and conducted under the direction of CSTS as a collaborative effort between USU, the University of California San Diego (UCSD), Harvard University and the University of Michigan.

Army STARRS included a number of separate but integrated studies designed to comprehensively examine the mental health and resilience of Soldiers including Regular Army, Army National Guard and activated Army Reserve. It involved the collection, integration and analysis of an enormous volume of data from large and representative samples of Soldiers, making it the largest research study of mental health risk and resilience ever conducted among military personnel. One of the studies was an historical cohort study of the more than 1.6 million Soldiers on active duty from 2004 to 2009. Army STARRS also included cross-sectional studies, a longitudinal study, and case-control studies that involved collecting data directly from more than 100,000 active duty Soldiers throughout the U.S. and overseas. The research included questionnaires, neurocognitive tests, blood collection, state-of-the-art genetic and other biomarker assays, and linking these data to existing Army/DoD records. This produced large and rich datasets to serve the goals of Army STARRS, but can also be used to serve broader goals involving many other outcomes besides mental health.

At the end of 2016, there were 41 Army STARRS publications, eight papers in press, eight papers

under consideration for publication, and many additional papers in progress. Benefits for the Army, and the nation as a whole, continue to emerge from this extraordinary, groundbreaking and complex project.

Army STARRS, called the Framingham of mental health studies, is now continuing as the Center is furthering the research through a five-year DoD-funded project, STARRS-LS. This project is conducted under the scientific direction and leadership of CSTS with the same consortium of four universities (USU, UCSD, Harvard University, and the University of Michigan) that designed and conducted Army STARRS. STARRS-LS involves two major research activities: 1) continue using the STARRS platforms, systems and data to conduct further analyses, derive further findings, and extract additional value; and 2) extend, expand and enhance the data with a longitudinal follow up of participants.

Largest Genome-Wide Association Study (GWAS) of PTSD to Date

The Army STARRS paper entitled "Genome-wide association studies of posttraumatic stress disorder in 2 cohorts of U.S. Army soldiers" published in *JAMA Psychiatry* (2016) was the largest GWAS of PTSD to date. In a very nice editorial by Kerry Ressler MD, PhD (Harvard Professor, Howard Hughes Fellow, and Chair of the Army STARRS Scientific Advisory Board) that appeared in the same issue of *JAMA Psychiatry*, he stated: "The Army STARRS project represents an unprecedented and highly successful collaboration between the National Institutes of Health and the Department of Defense to understand the effect of trauma exposure on the brain and to identify differential risk factors for a number of trauma-related sequelae in Soldiers."



Throughout 2016, the research team obtained additional existing Army/DoD administrative records for all active duty Soldiers from 2010 to 2015. Once complete, this will allow analyses of an historical cohort of all Soldiers on active duty over a twelve-year period (2004 to 2015). The research team also designed and began data collection in 2016 for the STARRS-LS longitudinal follow-up study that seeks to follow a cohort of more than 72,000 Army STARRS participants. This will include collecting two waves of additional questionnaire data and linking those data to additional Army/DoD administrative records. This follow-up study will extend the time-frame of Army STARRS to collect further outcome information throughout the Soldiers' Army careers, and to follow those who transition out of the Army through their adjustment to civilian life.

Psychological Stress and Resilience in Mortuary Affairs (MA) Soldiers: Longitudinal Study

Since 2005, CSTS has conducted research on the stresses of mortuary affairs operations during the wars in the Middle East. U.S. Army mortuary affairs (MA) Soldiers, who work with the dead of battle, are exposed to some of the highest stressors of war, combat death. In addition, MA Soldiers deal with the stress of deployment and returning home. This research has examined training and preparation, stressors specific to working with the dead, and adjustment to family and work after returning from deployment. Empirical and descriptive data is collected on PTSD, depression, distress (symptoms

of posttraumatic stress, e.g., somatization, anger and hostility), health risk behaviors including increases in alcohol and drug use, resilience and psychological well-being, and instrumental and emotional support. During 2016, we continued collecting surveys and preliminary data analysis focused on deployment exposures and identification with the dead. These studies have implications for early intervention, training, education, leadership and health surveillance.

Troop Education for Army Morale (TEAM)

TEAM is a stress management and resilience building early intervention study with the goal of improving post-deployment readjustment in MA Soldiers. TEAM involves a randomized group of MA Soldiers and a comparison group (usual care) immediately after return from deployment. The study is designed to help the Soldiers cope with the daily challenges of post-deployment life, including re-integration into family and garrison life. TEAM is based on the five evidence-informed principles of Psychological First Aid (physical and psychological safety, calming, connectedness, self-efficacy, and hope/optimism) and delivered through four group workshops, informational handouts, a dedicated website, and support through concierge phone and email services. A total of 125 MA Soldiers in 10 cohorts participated in the study. MA Soldiers in the study have a high number of traumatic deployment exposures, and rates of probable PTSD and depression, that are similar to combat troops. While the intervention did not reduce rates of PTSD, TEAM skills training targets were reported to be helpful and had no negative effects. As expected, Soldiers who attended more workshops reported fewer symptoms and were more likely to rate TEAM as helpful.

Reserve Component of the U.S. Armed Forces

The Center is strongly committed to supporting the Reserve Component (RC) of the United States Armed Forces and continues to conduct extensive research with the RC, a traditionally under-studied population that experiences unique stressors when the nation is at war or when they are called for emergency service such as disaster relief. These stressors

are substantially different from those experienced by the Active Component (AC). In collaboration with Dr. Sandro Galea at Boston University, CSTS is conducting longitudinal research on the health and mental health of National Guard and Reserve Service members nationwide. The study addresses the epidemiology and trajectory of posttraumatic stress, deployment stress, health risk behaviors and health care utilization in the National Guard and in the Reserves of the Army, Navy, Air Force and Marine Corps. There have been four waves of data collection to date, and the team is actively analyzing this rich data set. A protocol has been developed to add a fifth wave in order to extend our data on trajectories of health in this important population. This research is unique in that it uses a representative national cohort and specifically addresses the experiences of the Guard and Reserve, as distinct from the experiences of the AC.

Army STARRS and STARRS-LS provide an unprecedented opportunity to further examine the health and mental health of RC members. The Army STARRS New Soldier Study included surveys of approximately 23,000 RC Soldiers during their first week of basic training. Many participants also provided blood samples for the examination of biomarkers. This collection of data at the beginning of Soldiers' military service provides an opportunity to follow them through the course of their military careers and beyond in order to identify risk factors for health outcomes, as well as factors that promote resilience. In addition, Army STARRS included RC members in the All Army Study and in the in-theater study of Soldiers serving in Afghanistan, again yielding data that can be used in long-term studies while providing a snapshot of current health and mental health. This creates the opportunity for assessment of concentrations of risk in order to develop future interventions to promote and sustain military health. In STARRS-LS, both in-depth analysis of existing data, and collection of new data on members of the RC, are important aims.

The CSTS portfolio of research on the RC is rounded out by studies of biomarkers conducted in National Guard units before and after deployment for combat tours in Afghanistan. Taken together, this

combination of studies geared specifically to the RC, along with inclusion of RC members in other CSTS research including the Child and Family Program, gives CSTS a key role in expanding knowledge of the special needs of the Citizen Soldiers on whom our nation relies.

RESEARCH IN THE CHILD AND FAMILY PROGRAM

The Center's Child and Family Program (CFP) is a national leader in advancing scientific and clinical knowledge, and providing educational resources addressing the needs of children and families affected by trauma, especially our nation's military families and children. CFP projects shed light on family bereavement, child neglect and maltreatment, and combat injury in military and civilian communities. Dr. Stephen Cozza, CSTS Associate Director, underscores both the strength and vulnerability of these children and families that result from these experiences. The Child and Family Program addresses these complex issues through pioneering research, by educating professional audiences including military and government stakeholders at conferences, and through scholarly publications and consultation to DoD leadership and national media outlets.



Family Bereavement

The National Military Family Bereavement Study (NMFBS)

NMFBS is the first scientific study to examine the impact of a U.S. Service member death on surviving family members. It 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 and support. An optional part of the study examines saliva samples for genetic biomarkers associated with outcomes. More than 2,200 adult participants have completed questionnaires. The longitudinal portion of the study, which consists of annual interviews over three years, continues until 2017. Approximately 850 adults and 120 children are participating in the longitudinal portion of the study. During 2016, data from this study were used to evaluate criteria for Persistent Complex Bereavement Disorder leading to a publication in the *American Journal of Psychiatry*. Several additional manuscripts have been written and submitted for publication.



Stepping Forward in Grief (SFG)

NMFBS found that a sizeable portion of surviving military family members are suffering from high levels of grief and distress, putting them at risk for harmful



long-term changes in physical and mental health. Recognizing the need to help these families, the NMFBS formed a partnership with the Center for Complicated Grief at Columbia University to develop an intervention study, Step-

ping Forward in Grief, for bereaved military families. Funding for the SFG study was awarded in May 2015. The SFG study involves the development and testing of a digital intervention (GriefSteps) that is designed to lower grief and decrease risk for long-term problems. The GriefSteps intervention is being adapted from Complicated Grief Therapy (CGT) that has been shown to be helpful in civilian populations. CGT helps to resolve grief complications and promote wellness. The SFG study is a randomized controlled trial. Participants will be assigned to one of two groups: either an intervention group to receive GriefSteps, or a control group to receive WellnessSteps that will focus on building resilience. The study will compare how people in the GriefSteps intervention group do, compared to the WellnessSteps control group, in overall improvement in grief severity and adaptation to loss. All SFG study participants will be able to complete their programs virtually, either on an app or on the Internet. In addition, both groups will have “guides” who can help and answer questions about the study. Through the SFG study, we will learn how to best assist military family survivors with their grief and reduce the long-term problems that can occur after a loss, resulting in an extremely helpful resource for current and future survivors who suffer the death of a military loved one. Military Service members may also be consoled by knowing that such services are available to families if they or a close unit member or friend should die while on active duty. During 2016, the GriefSteps and WellnessSteps conditions were developed. Participant recruitment will launch in 2017.

Study of Long-Term Outcomes of Terrorism-Related Grief

The Child and Family Program partnered with Voices of September 11th (VOICES), a not-for-profit organization that provides services for 9/11 families, and the Canadian Resource Centre for Victims of Crime (CRC), an organization that is engaged with, and supportive of, family members who were bereaved by the Air India Flight 182 bombing. The study partners are investigating long-term positive and negative bereavement outcomes that follow a terrorism-related death, including grief, traumatic symptoms, resilience characteristics and posttraumatic growth. More than 400 participants who are family members bereaved by the bombing of Air India Flight 182 on June 23, 1985 or by the events of September 11, 2001 completed an online questionnaire about their experiences related to the aftermath of these events and the death of their family member(s). The study will determine predictors of bereavement outcomes and use findings to develop preliminary working models for understanding risk and protective factors for bereaved family members of terrorism-related deaths. This study will build a basis for ongoing research to inform training and counsel for disaster and terrorism victims and their families. Data from this study were presented at the 2016 Annual Meeting of the International Society for Traumatic Stress Studies in Dallas, Texas. Scientific journal manuscripts are being developed to present these findings to the research community.

Child Neglect and Maltreatment in U.S. Military Communities and Families

Military-Related Risk for Child Neglect in DoD Families: A Population Study to Inform Future DoD Child Neglect Prevention Efforts

The Child and Family Program was awarded a grant from the Department of Defense in 2016 to complete a two-year study investigating child maltreatment and neglect across all Service branches of military families. Using existing data from military families with substantiated cases of child abuse and/or neglect and matched control groups for comparisons, the project will: (1) identify risk and protective

factors for various types of child physical abuse, sexual abuse and neglect in military families; (2) ascertain the effectiveness of military family participation in the New Parent Support Program (NPSP) for reducing child abuse and neglect prevalence; (3) examine the interaction of abuse and neglect correlates and NPSP participation on child abuse and neglect outcomes; and (4) identify which at-risk families benefit most from NPSP and where additional preventive programming may be needed. To date, efforts have focused on reviewing the existing empirical literature, and identifying datasets and variables to include in analyses and gaining access to the datasets.

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

This study describes the characteristics of substantiated child neglect cases in the Army and identifies factors that contribute to healthy family functioning as well as to child maltreatment. Data were collected from over 1,000 questionnaires and from the records of 400 substantiated child neglect cases from Army installations across the country. In 2015, we published the first reports of types, subtypes and severities of substantiated child neglect cases in the U.S. Army, as well as demographic information about child victims and offenders by type and subtype. A second manuscript about military-specific risk factors, including deployment-related risk and its association with different types of child neglect is currently under review for publication. A third manuscript that identifies parent and family risk factors associated with distinct types of neglect is forthcoming.

Combat Injured Families

A Study of Combat Injured Families

This study examines the short- and long-term impact of severe combat injury on military families through interviews conducted at Operation Purple Healing Adventures (OPHA), an annual summer camp program for combat injured Service members and their families sponsored by the National Military Family Association (NMFA). Forty families were assessed and qualitative data were collected from

focus groups to assess the issues related to combat injury and family functioning. We are currently analyzing the collected data to better understand the complex effects and challenges experienced by combat injured Service members and their families.

Addressing the Needs of Children and Families of the Combat Injured

This study investigates the impact of combat injury on military families over time. All information has been collected from consenting military families at Walter Reed National Military Medical Center (WRNMMC) and San Antonio Military Medical Center (SAMMC). The data are currently being analyzed to identify the short- and long-term effects of parental combat injury on Service members and their families and children and to inform intervention strategies for this population. Data collection for this study concluded in 2015 and preliminary analyses of the data has begun.

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

The Families Over Coming Under Stress - Combat Injury study (FOCUS-CI) is the first of its kind to pilot a preventive intervention with the children and families of combat injured Service members, to examine the feasibility of its use, and to study its efficacy in this context. Using a randomized controlled trial approach, the study was designed to test the effectiveness of a new family-centered, strength-based, evidence-informed intervention for severely combat injured Service members and their families. FOCUS-CI provides instrumental support to families and teaches emotion regulation, problem solving, communication, and goal-setting skills. Data were collected from military families from Washington, DC, San Antonio, Texas and Chapel Hill, North Carolina who participated in the study. We continue to examine the effectiveness of the intervention on family functioning by comparing FOCUS-CI to the existing standard of care on the effects of key aspects of family functioning. These data will help us better understand the experience of combat injury, its impact on Service members and their families, and to inform programmatic

intervention that can better address the needs of military families.

The Family Violence and Trauma Project (FVTP)

Through the FVTP, CSTS continued to support the U.S. Army Installation Management Command and the Medical Command in projects that promote public health approaches to preventing maltreatment. We also supported research in a variety of approaches to this same end. We analyzed the rates of child and intimate partner violence for the total Army and for 38 installations. These reports were prepared as a set of briefing books for Family Advocacy Program (FAP) managers to describe the numbers and rates of maltreatment by gender, type, severity, military-civilian status, and whether the incident occurred on or off the military installation. We also supported the Army's fatality review board in preparing a report of maltreatment fatalities for the fiscal year 2014. Other ways we supported the Army FAP was by providing consultations, briefings, and research literature to answer important questions involving spouse and child maltreatment. We assisted investigators in the field with their research related to the Army FAP. We continue to publish two newsletters semi-annually: *Joining Forces Joining Families (JFJF)* and *Research Reviews (RR)*. *JFJF* publishes an interview of a prominent maltreatment researcher. *RR* provides highlights of current FAP research in non-technical language to help FAP personnel grasp current issues in an abbreviated format. Both *JFJF* and *RR* are broadly distributed within the Army, the Department of Defense and applicable civilian agencies concerned with family maltreatment.



RESEARCH IN NEUROSCIENCE AND NEUROBIOLOGY

The Center's laboratory and clinical research in neuroscience and the neurobiology of stress has been active in seeking effective interventions for trauma and stress-related disorders. We continued our cutting-edge research in a number of military-related health issues including PTSD, mTBI and suicide.

Laboratory Research in Neuroscience and Neurobiology

Genetics and Biomarkers

CSTS laboratory research activities in 2016 included a range of different assays related to studying neuroscience and neurobiology in military Service members. These assays included genetic biomarkers, cortisol levels, and telomere length.

The CSTS biomarker research involved the purification of DNA from saliva samples and blood samples collected from Soldiers, and genotyping the DNA for several target genes including *BDNF* and *FKBP5*.

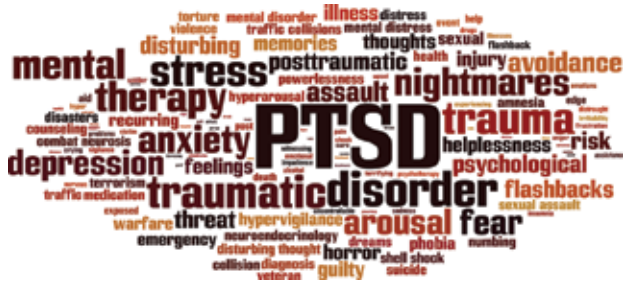
In other laboratory research, CSTS scientists measured serum cortisol levels before and after the development of PTSD in Guamanian National Guard Soldiers, in order to examine changes in serum cortisol levels related to PTSD. Serum cortisol levels for Soldiers with PTSD were also compared to matched controls without PTSD.

CSTS scientists measured telomere length in DNA extracted from blood samples collected from U.S. Army Special Operations Units deployed during the Iraq and Afghanistan wars. This study is investigating the relationship between hostility and leukocyte telomere length (LTL). Hostility scores were measured using five items from the Brief Symptom Inventory (BSI). The LTL was assessed using quantitative polymerase chain reaction methods. Telomere attrition may represent a novel mechanism involved in the effects of hostility on aging. Prevention and treatment efforts designed to reduce hostility might help mitigate risk for accelerated cellular aging in the U.S. military population.



Drug Development for the Treatment of PTSD

The Center, in collaboration with the University of California, Irvine (UCI), is initiating an exciting new avenue of research to examine novel compounds for the treatment of PTSD using a non-mammalian rapid throughput model. The zebrafish, or *Danio rerio*, will be used as a rapid throughput model for early screening. The goal of this research is to improve the identification of candidate therapeutic agents for the treatment of PTSD. Early phase evaluations in zebrafish will allow for selection from a wide array of compounds *in vivo*, using behavioral profiles to detect response. This selection process is expected to increase the success rate of subsequent evaluations in higher-order animal studies. The zebrafish laboratory is currently establishing baseline procedures and behavioral signatures of response to medications commonly used for the treatment of PTSD. The first novel compounds to be tested after completion of baseline procedures will be fatty acid amide hydrolase (FAAH) inhibitors, with activity in the endocannabinoid system. CSTS will prepare for future use of the model by performing comparisons of behavioral response to compounds tested in both zebrafish and an established rodent model at UCI.



Clinical Research in Neuroscience and Neurobiology

Riluzole Augmentation Treatment for Complicated Combat-Related PTSD

CSTS continued to conduct a multi-site clinical trial at WRNMMC and the Syracuse Veterans Affairs Medical Center. This study is evaluating the efficacy of the medication riluzole in veterans with combat-related PTSD who have not achieved relief of their symptoms from current evidence-based treatments. Current recommended medications for combat-related PTSD increase the availability of selective serotonin reuptake inhibitors (SSRIs) or serotonin-norepinephrine reuptake inhibitors (SNRIs) in the brain, but do not adequately relieve symptoms for many patients. This study addresses an urgent need to investigate other medications and other mechanisms that may be more effective. Riluzole modifies activity of glutamate, a highly prevalent neurotransmitter in all brain regions. Preclinical research suggests it may help reverse damage to areas of the brain such as the amygdala, anterior cingulate cortex and hippocampus, where an excess of glutamate is believed to contribute to PTSD symptoms. This is a randomized, controlled, double-blind trial comparing the effect of riluzole against placebo over eight weeks of treatment. PTSD, depression and anxiety symptoms are assessed once per week. An exciting aspect of this study is the incorporation of magnetic resonance spectroscopy comparing concentrations of neurotransmitters and related chemicals in specific brain regions associated with PTSD before and after treatment. We hypothesize that treatment with riluzole will result in greater PTSD symptom improvement, greater improvement in depression and anxiety symptoms, and greater improvement in overall well-being compared to

placebo. We also hypothesize that spectroscopy changes in the amygdala, anterior cingulate cortex and hippocampus will associate positively with improvement due to riluzole compared to placebo. This multiyear study is in the final months of recruitment and will begin data analysis and publication of findings in 2017.

Enhancing Fear Extinction via Angiotensin Type 1 Receptor Inhibition: A Randomized Controlled Trial in Posttraumatic Stress Disorder

CSTS is a partner in a multi-center clinical trial investigating the efficacy of the medication losartan for treatment of PTSD. Losartan is an angiotensin receptor blocker currently in common use as a blood pressure medication. This study adds to the CSTS portfolio of investigations aimed at expanding medication options for patients with PTSD. CSTS is recruiting participants at WRNMMC for this multi-site study. Other study sites include Massachusetts General Hospital, Atlanta VA Medical Center, and George Washington University. Preclinical investigations suggest losartan enhances fear extinction in animal models, and retrospective data in humans from the Grady Trauma Project identified lower rates of PTSD in trauma patients treated with angiotensin receptor blockers. This randomized, controlled, double-blinded trial will compare the effect of losartan against placebo on PTSD symptoms over ten weeks of treatment. We will evaluate PTSD and depression symptoms, as well as side effects of medication every two weeks. In addition, this study will examine the contribution of variations in the angiotensin converting enzyme (*ACE*) gene to treatment response. We hypothesize that treatment with losartan will result in greater reduction of PTSD symptoms than placebo, and that patients with a particular variant of the *ACE* gene will respond more favorably to treatment with losartan. This clinical trial is currently recruiting participants through 2018.

The VA National PTSD Brain Bank

The mission of the National PTSD Brain Bank, which opened in 2015, is to improve the lives of veterans with PTSD. This is the first brain tissue repository dedicated to researching the physical impact of

stress, trauma and PTSD on brain tissue. This Brain Bank is a critical step toward identifying potential biomarkers of susceptibility and developing new treatments that target PTSD at the cellular level. The National PTSD Brain Bank will help pave the way for new approaches to the diagnosis and treatment of individuals with PTSD.

The Brain Bank has collected brain tissue from more than 100 donors so far. Nearly half of the donors were diagnosed with PTSD. The Brain Bank is also collecting tissue from persons without PTSD to be used in studies as controls. In addition, more than 50 living persons have enrolled in the longitudinal follow-up registry as future donors.

CSTS scientists direct the Brain Bank's Assessment Core and serve on the Brain Bank's Scientific Advisory Board. The Brain Bank is now accepting applications from outside investigators in addition to conducting intramural research.

At a National PTSD Brain Bank meeting in Boston this year, it was decided that CSTS will coordinate with the Collaborative Health Initiative Research Program (CHIRP) to perform whole genome sequencing and methylation, in collaboration with Yale, for the Brain Bank's first core study. CHIRP is a precision medicine-based collaborative effort between the National Institutes of Health (NIH) and the DoD. CHIRP is based at USU on the campus shared with WRNMMC.

The Brain Indices Study

It is estimated that tens of thousands of combat veterans with TBI will develop PTSD and other adverse sequelae, including depression and suicidal behaviors. The goal of the Brain Indices Study is to develop reliable and valid predictors of negative outcomes to inform targeted treatments that can be implemented early, and thereby improve the lives of our wounded warriors and their families. The study, directed by CSTS, is conducted in the Brain Assessment Research Laboratory at Walter Reed National Military Medical Center and Fort Belvoir Community Hospital, and funded by the DoD Congressionally Directed Medical Research Programs (CDMRP) and the Center for Neuroscience and Regenerative Medicine (CNRM). This longitudinal study was designed

to identify measures of brain structure and function that predict PTSD and other negative outcomes in Service members with mTBI. We are examining cerebral consequences of blast versus impact TBI, as well as the progression of symptoms over time, in injured Service members with mTBI. The brain measures, which include neuroimaging, electrophysiological, neurocognitive, and neurological assessments, are assessed soon after injury, and 3 and 6 months later. The goal is to identify associations between the mechanism of brain injury (i.e., blast versus impact) and the nature and severity of outcome in order to ameliorate and/or prevent the debilitating consequences of mTBI and PTSD.

We completed enrollment and final evaluations of the mTBI and injured control participants. The focus then shifted to recruiting and testing subjects to serve as healthy Service members (HSM) matched on demographic variables but with no history of concussion or blast exposure. These Service members underwent the same assessment battery at the three time points, and data collection was completed in late 2015. The HSM group is important in interpreting the results, as preliminary analyses of the imaging and electrophysiology data revealed similar findings between Service members with mTBI and those with extracranial injuries who screened negative for TBI.

Our efforts in 2016 were directed to data processing and analysis. The primary objective is to evaluate associations between indices of brain structure and function at baseline, and the course of PTSD symptoms, post-concussive symptoms, and overall mental and physical health status in Service members with TBI or other injuries over the subsequent 6-month period. Our secondary objective is to characterize brain changes and clinical outcomes in Service members with blast versus impact TBI.

The Chronic Effects of Neurotrauma Consortium Study 1: Observational Study on Late Neurologic Effects of OEF/OIF/OND Combat

CSTS is directing this longitudinal, multisite investigation aimed at evaluation of the chronic sequelae and comorbidities associated with mTBI. Veterans and Service members who sustained mTBI in OEF/OIF/OND are evaluated on an extensive battery

of physiological, psychological, occupational and social functioning measures. Subjects then undergo periodic in-person and telephone reassessments to monitor them for evidence of neurologic (cognitive, behavioral, physical) decline.

As part of this study, CSTS is evaluating active duty Service members at Fort Belvoir Community Hospital using electrophysiological assays of cognitive function. Event-related brain potentials that reflect multimodal working memory and long-term memory access are recorded. Cerebral function derived from the EEG is also evaluated. These measures are aimed at: (a) seeking physiologic evidence of neurodegeneration, (b) clarifying the functional significance of changes in neurobiological variables through real-time measure of neural coordination, and (c) characterizing the neurocognitive mechanisms of impairments shown on cognitive performance tests.

This longitudinal cohort will allow for an assessment of the prevalence, natural history, and response to interventions of chronic symptoms, conditions, and associated comorbidities after mTBI. Cross-sectional analyses of the sample will allow for an analysis of the effect of time post-injury on chronic symptoms, conditions, associated comorbidities, and evidence of neurodegeneration after mTBI.

Application of Somatosensory Evoked Potentials to the Diagnosis of Traumatic Brain Injury (TBI): A Translational Approach

This FDA-funded study, directed by CSTS, aims to: (a) determine the utility of specific EEG biomarkers as diagnostic tools in Service members with blast-induced TBI based on translational work in animal models; (b) evaluate neurosensory effects of brain injury by looking at early and late components of the somatosensory evoked potential (SEP); and (c) assess within-subject and between-subjects correlations between the magnitude of EEG changes and the severity of brain injury, as defined by clinical exams and/or neuroimaging studies. This work is aimed at providing a foundation for the use of SEPs as an EEG-based biomarker for a rapid, field-deployable diagnostic system for TBI. Data collection will commence upon IRB approval.

Ecological Momentary Assessment of Posttraumatic Stress Symptoms in U.S. Military Service Members (Daily Diary Study)

This study uses ecological momentary assessment to collect data throughout the day on posttraumatic stress symptoms (PTSS), sleep, pain, substance use and other areas of health and functioning in



U.S. military Service members. This “daily diary”

methodology allows for detailed assessment of variability of symptom patterns as they occur throughout the day, providing important insights into the interaction between symptoms and environment, psychosocial relatedness and brain processes. This cutting-edge methodology provides assessments over the course of the Service member’s daily routine, four times a day over 15 continuous days. In Phase I of the study, participants completed daily assessments on paper questionnaires. In Phase II, participants completed daily assessments on electronic tablets using a sophisticated application developed in collaboration with the National Center for Telehealth and Technology (T2) specifically for use in this study. Psychiatric disorders, including PTSD and depression, are assessed at baseline and in one and three month follow-up assessments. By the end of 2016, 98 Service members had joined the study. A total of 1,933 paper and 1,849 electronic daily assessments had been collected, and 30 blood and 26 saliva samples had been collected. Also in 2016, we examined daily variation in posttraumatic stress symptoms and their relationship to sleep and PTSD in Phase I data. A manuscript has been submitted and further analyses of daily variation in posttraumatic stress symptoms in Phase I and Phase II are underway. This innovative study has implications for interventions and program development through awareness of posttraumatic symptom variability. This methodology informs future use of technology in psychiatric assessment, treatment, and research.

RESEARCH ON TERRORISM AND DISASTERS

Florida Department of Health Response to Multiple Hurricanes

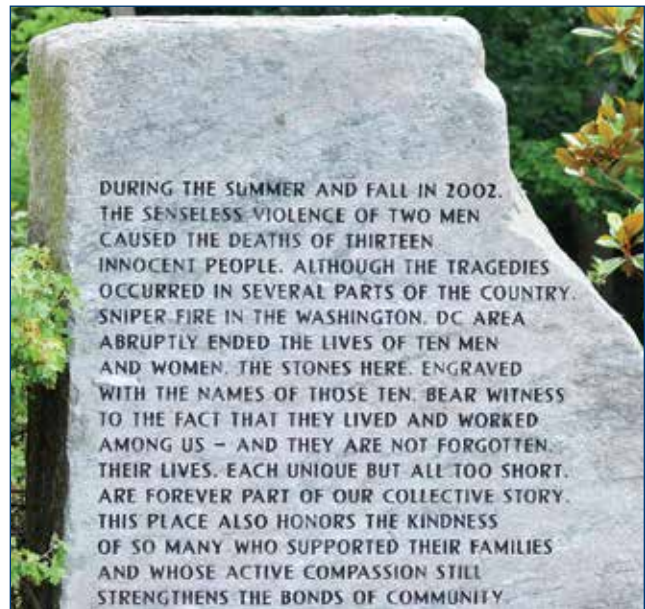
Since its beginning, the CSTS has focused on the risk and protective factors for posttraumatic disorders, distress and health risk behaviors associated with traumatic events affecting both civilian and military populations. This study examines the psychological and behavioral responses of Florida Department of Health workers to the multiple hurricanes that occurred during the 2004 and 2005 hurricane seasons. The current focus is on the influence of community collective efficacy following the four hurricanes and one tropical storm in 2004 on residents' self-reports of daily physical and mental health nine months after the storms, as measured by the CDC Health-Related Quality of Life Healthy Days assessment. These individuals were not only first responders to the multiple hurricanes but were also affected personally by the storms. This included injury to self and family, and damage to homes, some requiring relocation. This research provides actionable recommendations for community leaders and clinicians to address longer-term



recovery issues in individuals and communities following exposure to natural disasters.

Washington, DC Area Sniper Study

CSTS collected data at the time of the 2002 Washington, DC sniper attacks from individuals living in the area. Few studies have examined this event due to the dearth of empirical data. The Center research in this area makes a unique contribution to the literature on terrorist events. The study examines the relationship of identification with victims of the sniper attacks, TV viewing, prior life-threatening events and other factors to posttraumatic stress and depressive symptoms. This study, which includes 1,238 Washington, DC area residents, found that the amount of event-related television viewing and exposure to previous life-threatening events were related to identification with the victims of the sniper attacks. Further research continues to explore the interrelationships of these characteristics and others in order to better prepare for terrorist events and inform interventions with individuals and communities.



Education and Training

A core component of the Center's mission is education and training. Center scientists educate and train USU medical students committed to service in our nation's Army, Air Force, Navy and Public Health Service. The Center educates leaders and health care providers in public and private agencies. In addition, the Center sponsors conferences, seminars and symposia that have educational and training objectives. The Center advances the field of military and disaster psychiatry through presentations, outreach and training, as well as through participation in conferences, collaborations and workshops across the U.S. and internationally. The Center also educates and expands knowledge through public health efforts and interventions during and after disasters.

One way in which the Center educates is through the dissemination of educational materials to inform stakeholders including: healthcare providers, first responders, community leaders, families, teaching professionals and policy makers. For more than two decades, the Center has created customized, easy-to-read, just-in-time educational fact sheets to assist Center stakeholders to effectively manage the adverse effects of traumatic stress through enhanced preparation and response to disaster events.

In 2016, the Center provided educational resources to partners throughout the DoD, as well as to other Federal agencies, state and local agencies, professional associations, and others. The Center responded to many disaster events in 2016 including the water crisis in Flint, Michigan; the floods in Louisiana; Hurricane Matthew which impacted the southeastern United States; the warehouse fire in Oakland, California; and the Pulse Night Club shooting in Orlando, Florida.

DISASTER RESPONSE AND PUBLIC EDUCATION

Since its inception in 1987, the Center has been providing disaster response consultation and edu-

cation in many forms and in many situations. These activities include on-the-ground support to disaster events, such as the 9/11 Pentagon response in 2001, the mass shooting at Fort Hood, Texas in 2009 and the active shooter incident at the Washington Navy Yard in 2013.

CSTS emphasizes disaster preparation, as well as disaster response and education. The Center Director serves as Chair of the American Psychiatric Association Disaster Committee. Current and former Center personnel have been called upon to provide expert guidance on disaster preparation and response activities as a result of the experience and subject-matter expertise obtained while working at the Center.

The following are examples of Center disaster response and education activities in 2016:

- The Center provided educational materials and other support to the Executive Director of the National Association of State Mental Health Program Directors (NASMHPD), the Michigan Department of Health and Human Services, and the Michigan Psychiatric Society in response to the water crisis in Flint, Michigan. This included information to assist with their response efforts, education on the management of disasters involving exposure and contamination, the use of risk communication strategies, and how best to support the affected communities in the recovery process.
- CSTS presented a poster on disaster fact sheets and emergency action plans at the Learning in Disaster Health symposium sponsored by the National Center for Disaster Medicine and Public Health (NCDMPH). The disaster mental health fact sheet poster received an outstanding poster award. At the request of NCDMPH, CSTS scientists also presented the material via a global webinar.
- Following the catastrophic flooding in Louisiana, which resulted in the disinterment of bodies from cemeteries, CSTS developed and disseminated educational materials that addressed mental

health issues related to exposure and handling of human bodies and mass death. These materials provided an overview of important psychological and cultural considerations for relief workers, first responders, and healthcare providers.

- In a new collaboration with the University of California, Los Angeles (UCLA) and the National Institute of Justice, the Center began serving as part of a multi-site protocol examining mental health and resilience factors impacting communities exposed to mass shooting events. The primary site of study is the Washington Navy Yard because of the 2013 workplace mass shooting incident. This collaboration was built on an existing partnership between the Center and the Naval Sea Systems Command (NAVSEA) to provide assessment and interventions in support of NAVSEA personnel who have experienced social and occupational difficulties after the Washington Navy Yard mass shooting event.
- The Center collaborated with the embedded health care team attached to the U.S. Air Force 480th Intelligence, Surveillance and Reconnaissance Wing at Langley Air Force Base to assess stress and mental health in the intelligence

operators managing information from remotely piloted combat aircraft. The goal is to enhance personal wellness, mitigate stress, and optimize performance.

- The Center partnered with the Drug Enforcement Administration (DEA) to provide a 3-day training event for DEA agents returning from high-threat overseas posts. Center scientists provided training that included information on understanding stress, identifying adverse signs of stress, the benefits of seeking help and how to overcome barriers, such as stigma. The presentation served as the introduction for the first-ever Reintegration Training for DEA agents and their spouses or significant others.
- CSTS assisted the Western New York Psychiatric Society (WNYPs) with standing-up their disaster response team by providing disaster preparedness and response training. On the day of the presentation, a steel refinery in the area caught fire and set ablaze six blocks before finally being contained, and required extensive ongoing monitoring of air quality in the region for months after the incident. As a result, the Center presentation to the WNYPs served as just-in-time training to assist with their efforts to support the mental health of those involved or impacted by the fire, as well as response and recovery efforts.
- CSTS provided training to the Regional Medical Officer Psychiatrist team of the U.S. Department of State on a public health approach to military medical response to mass violence. The training provided the psychiatrists, who are critical to ensuring the mental health of personnel involved in international diplomacy engagement, with updates on mental health effects of disasters on individuals and communities, evidence-based early interventions, and effective risk and crisis communication strategies.
- For the third consecutive year, a Center scientist was invited to present a one-day seminar to the senior psychiatry residents at the University of Maryland/Sheppard Pratt Psychiatry Residency Program. The seminar provided the only education in disaster psychiatry for these junior psychiatrists. Residents from this training program used



CSTS scientist CDR Morganstein receiving an outstanding poster award from the National Center for Disaster Medicine and Public Health (NCDMPH).

the information in response to episodes of civil unrest and community violence in Baltimore, Maryland.

- A Center Associate Director conducted three trainings in behavioral health factors in preparedness, response, and recovery for Maryland Local Emergency Planning Groups in Howard County, Carol County, and all Western Maryland Counties. These trainings provided evidence-based information regarding disaster behavioral health to a wide range of stakeholders.

NEUROSCIENCE MODULE FOR PRE-CLERKSHIP USU MEDICAL STUDENTS

The neuroscience module, co-directed by the Department of Psychiatry, including CSTS scientists, and the USU Department of Anatomy, Physiology, and Genetics, prepares pre-clerkship medical students for their clerkship period, as well as providing a foundation of knowledge that will inform their long-term education. The neuroscience module covers a breadth of information from basic neuroanatomy to clinical skills in neurology and psychiatry.

EDUCATION AND TRAINING IN COMBAT AND OPERATIONAL STRESS CONTROL: OPERATION BUSHMASTER

CSTS scientists are an integral part of combat and operational stress control (COSC) education at USU as part of the annual medical field training exercise, Operation Bushmaster. Students participate in a four-day large-scale medical simulation challenging them to practice medicine in a realistic combat environment. CSTS faculty have developed a collection of realistic COSC scenarios seamlessly integrated into the simulation and use these scenarios to assess student performance in basic combat and operational stress control skills.

HOMELAND SECURITY TRAINING

CSTS partnered with the Army's Comprehensive Soldier Fitness program to implement a training program in psychological first aid/team resilience

building for the Department of Homeland Security (DHS) in 2015. The DHS and the Center collaboratively developed and pilot tested a cutting-edge resilience training program that incorporated findings from an initial assessment of existing DHS programs and included elements of Psychological First Aid, Decision Making in High Stress Environments, and individual and team resilience. In 2016, the Center provided ongoing consultation, as the DHS expanded its Responder Resiliency and Decision Making program to agencies within the Department who requested additional training based on the Center's pilot program.

MORTUARY AFFAIRS OFFICER EDUCATION

CSTS provided ongoing officer education at the Joint Mortuary Affairs Center and School at Fort Lee, Virginia, assisting the active duty forces and the mortuary affairs school as they trained and deployed new Soldiers in response to changing missions. The program addressed resiliency, preparedness, training and education of military personnel for the stresses of deployment and working with the dead. Content experience comes directly from our research findings and intervention with Mortuary Affairs Soldiers.

FAMILY SAFETY EDUCATION

Families are the guardians of safety for their members — this spans across the home and neighborhood. This includes protecting children from medications, asking about safety in home visits, as well as teaching how to cross the street, avoid falls and injuries, and when to seek medical care. Prevention of PTSD from injury and suicide from poisons and firearms are under-tapped areas for learning about and enhancing family safety education. For example, evidence suggests that adopting safe storage practices can reduce the likelihood of deaths due to firearms.

The Center partnered with the Yellow Ribbon Reintegration Program (YRRP) and the Defense Suicide Prevention Office (DSPO) to develop the Personal Firearm Safety Education Project. The

project created multimodal educational materials on personal firearm safety. This targeted effort strategically supports DoD suicide prevention efforts by educating Service members on the importance of personal firearm safety. This training program, implemented in conjunction with pre-and post-deployment events, promotes evidence-based gun safety practices to enhance the safety of Service members and their families. As part of continued efforts to better understand the importance of family safety and how best to train our health care providers who strive to decrease PTSD and suicide risk, CSTS organized a Forum on Health and National Security, gathering experts from across the country to meet with scholars from the military health system to consider the issues. This forum is scheduled to take place in January 2017.

TEXTBOOK ON COMPLEMENTARY AND ALTERNATIVE MEDICINE (CAM) FOR PTSD

CSTS Associate Director COL Benedek and Center scientist LTC Wynn published the textbook *Complementary and Alternative Medicine for Post-traumatic Stress Disorder*. This text, an invited project from Oxford University Press, is a first of its kind comprehensive look at a variety of complementary and alternative treatment modalities. Each chapter reviews a different CAM treatment, its evidence base and the potential clinical utility for those suffering from PTSD. The treatments covered include acupuncture, yoga, meditation, animal assisted therapy, transcranial magnetic stimulation, virtual reality, smart phone applications, alternative pharmacology and family therapy. This project includes chapter contributions by several Center members including the chapter “Family Therapy” by Center Associate Director Dr. Stephen Cozza.

UPCOMING TEXTBOOK OF DISASTER PSYCHIATRY (SECOND EDITION)

Since the publication of the first edition of the *Textbook of Disaster Psychiatry* in 2007 (edited by Robert Ursano, Carol Fullerton, Lars Weisaeth and

Beverley Raphael), there has been a proliferation of disasters worldwide. The second edition of the *Textbook of Disaster Psychiatry*, scheduled to be published by Cambridge University Press in 2017, brings together a distinguished group of international experts to provide an updated, comprehensive review of the psychological, biological and social processes of response to, and intervention for, disaster mental health needs. Chapters from the first edition have been updated, and fourteen new chapters have been added to the second edition. The second edition has a Scientific Advisory Board of leaders on the cutting edge of disaster psychiatry and represents a decade of advances in disaster psychiatry: the epidemiology of disaster response, the neurobiology of disaster exposure, socio-cultural issues, interventions, actionable research and advances in public health responses to disaster.

UPCOMING TEXTBOOK ON PTSD

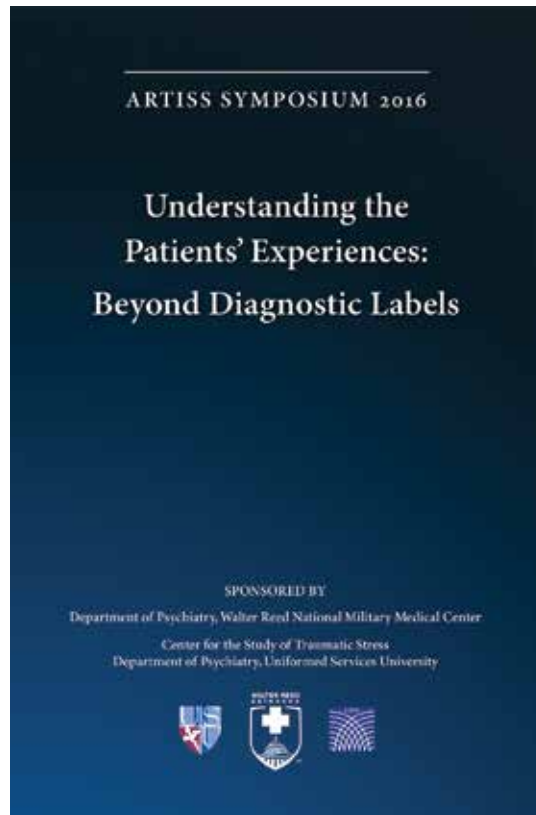
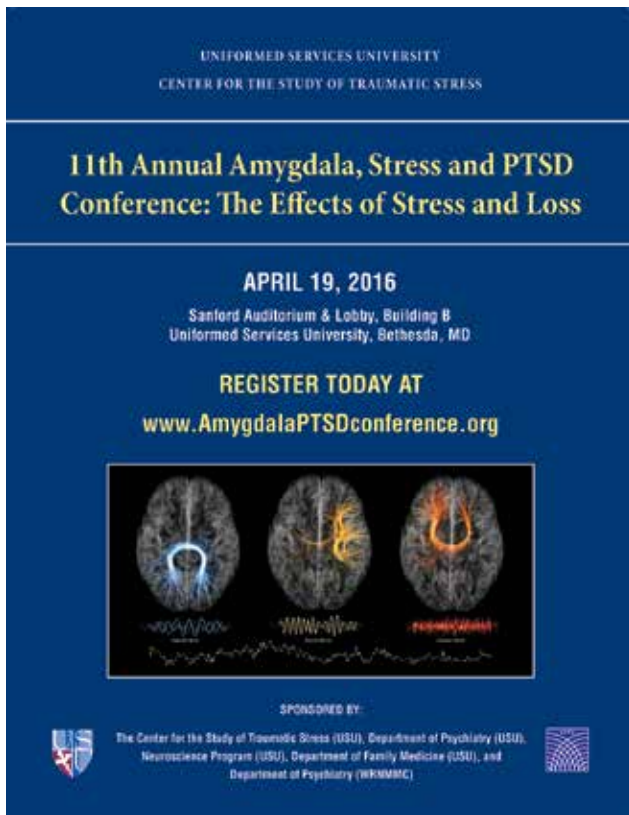
Center scientist LTC Wynn and Center Associate Director COL Benedek recently contracted to edit the American Psychiatric Association’s textbook on PTSD. Working with the American Psychiatric Press, Drs. Wynn and Benedek will engage with experts in the field of PTSD to put together a full professional title work on the topic. The textbook will cover a wide spectrum of topics from the basics of diagnosis and neurobiology to working with special populations and cultural considerations. The book is slated for publication in 2018.

EDUCATIONAL CONFERENCES

The Center sponsored two educational conferences in 2016: the 11th Annual Amygdala, Stress and PTSD Conference and the Artiss Symposium.

Amygdala, Stress and PTSD Conference: The Effects of Stress and Loss

For the past decade, the Center has sponsored the Amygdala, Stress and PTSD Conference at USU every year in April. In 2016, the Center presented the “11th Annual Amygdala, Stress and PTSD Conference: The Effects of Stress and Loss.” The Center



works in collaboration with the USU Department of Psychiatry, USU Neuroscience Program, USU Department of Family Medicine, and the WRNMMC Department of Psychiatry on this annual conference. The 2016 conference included more than 400 individuals registered for a day of world class presentations aimed at bringing together scientists, clinicians and policy makers working towards solving the biological basis of stress, fear and PTSD. The conference



speakers represented prestigious universities and research institutions from across the country and internationally including University of Michigan, Johns Hopkins University, Georgetown University and the University of Cape Town, South Africa. The speakers presented and discussed topics such as the use of big data in neuroscience research, the biology of empathy and the experience of trauma in South Africa. In addition to the conference, the Center partnered with the *Journal of Neuroscience Research* to put together a special issue based on the conference. The special issue from the 11th Annual Amygdala conference is currently in process and should be available summer of 2018.

Artiss Symposium: Understanding the Patients' Experiences: Beyond Diagnostic Labels

The Center is a sponsoring partner for the annual Walter Reed National Military Medical Center (WRNMMC) Artiss Symposium. Kenneth L. Artiss, MD (1913–2001), the namesake of the symposium, an Army officer, a research psychiatrist and instruc-

tor at Walter Reed Army Medical Center inspired generations of military psychiatry residents to conduct high quality research. This year's symposium, "Understanding the Patients' Experiences: Beyond Diagnostic Labels," examined why a diagnosis by itself is not sufficient, why clinicians need to look beyond the diagnosis and go beyond the obvious to try to understand the patient, and how to make an effective intervention with complex patients that both the patient and other clinicians understand. The Artiss symposium featured expert speakers in clinical and research leadership positions from throughout the Military Health System.

Forum on Health and National Security

Since the mid-1980s, the Center has held a series of conferences, the Forum on Health and National Security, bringing together experts from across the country with a wide range of expertise, perspectives and vantage points to meet with scholars from the military health system to think and talk togeth-

er about topics of importance to the military. By bringing together people who have thought through different parts of a problem, but who may have never talked together, our goal is to generate new knowledge, new thoughts and new ways of thinking about issues. The focus of the forums have addressed diverse topics: individual and group behavior in toxic and contained environments — psychological effects of chemical and biological warfare; military women in combat deployment and contingency operations; stress and coping with war; Army family violence; planning for biological events — responses to terrorism and infectious disease outbreaks; workplace preparedness for terrorism; stigma and barriers to care — caring for those exposed to war, disaster and terrorism; military families in transition — stress, resilience, and well-being; and financial stress and behavioral health in Service members — risk, resilience, mechanisms and targets for intervention. The next conference in this series is scheduled to take place in January 2017.



CSTS research support staff.

Examples of CSTS Fact Sheets

Center for the Study of Traumatic Stress

The Center for the Study of Traumatic Stress (CSTS) is part of the Department of Psychiatry, Uniformed Services University of the Health Sciences.

COPING WITH STRESS FOLLOWING A MASS SHOOTING

Mass shootings and other disaster events can be extremely stressful. Mobile devices and the internet provide instant access to the details of these events, but can also overwhelm us. Graphic images and videos, often seen in real time, can be very distressing. The seemingly random nature of these events as well as the 24/7/365 access to information about disasters around the world can leave us feeling unsafe and in persistent danger after a mass shooting occurs. Constantly feeling unsafe can lead to a variety of behaviors such as trouble sleeping, irritability, difficulty concentrating, increased use of alcohol and tobacco, social isolation and fear of those around us. In addition to the imagery, news commentary and political rhetoric that surround these events can enhance distress as well as mistrust, and further community divisions.

It is important to manage our response to mass shootings so we are able to care for ourselves, our families, and our communities. Below are steps to help people cope more effectively with stress after a mass shooting.

- Difficulty with sleep, irritability, and trouble concentrating are normal responses following a mass shooting; talk with your Primary Care Provider if these persist or cause problems with relationships or performance at home or work.
- Stay connected with other people, such as friends, family and neighbors, that provide positive and helpful support; social support helps people recover from stressful situations.
- If going to public places or traveling causes distress, go with other people or in groups until distress reduces.
- Check in with other people that were affected; reaching out to connect with others can be helpful to both of you.
- Avoid increasing alcohol and tobacco to cope with

It is important to manage our response to mass shootings so we are able to care for ourselves, our families, and our communities.

- Be cautious of news or other commentary that scapegoats large groups of people for the actions of a single individual; these perspectives often damage community connections and may increase the likelihood of future violence.
- Limit exposure to graphic images and videos on the news and social media, especially for children.
- It is important to talk with children and ask questions to learn their understanding of a mass shooting event. Consider the following when talking with children:
 - Use age-appropriate language; ask questions about what they may have seen or heard and listen to their concerns; respond in a non-judgmental and empathic way.
 - Pre-school and early school aged children often wonder if they have caused a bad thing to happen; if they have become aware of a mass shooting, they should be told directly it is not their fault.
 - Remind children and adolescents that even though some people hurt other people, there are many people working to keep them safe such as police, fire and rescue, and healthcare providers.

Additional Resources

- National Child Traumatic Stress Network – Catastrophic Violence Resources: <http://www.nctsn.org/traumatic-stress-resources>
- Center for the Study of Traumatic Stress: <http://www.cstsonline.org>

Center for the Study of Traumatic Stress
Uniformed Services University of the Health Sciences
4301 Jones Bridge Road, Bethesda, MD 20814-4799
www.CSTSonline.org

Center for the Study of Traumatic Stress

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LEADERSHIP COMMUNICATION: Anticipating and Responding to Stressful Events

"When people are stressed and upset, they want to know that you care before they can admit you know!"
— Will Rogers

How leaders behave and communicate during stressful situations, such as the response to a disaster event, can make significant differences in how people respond and react.

Additionally, how you deliver your message will often have an even greater impact than what you actually say or do.

How leaders behave and communicate during stressful situations, such as the response to a disaster event, can make significant differences in how people respond and react.

Under stress, people focus on negatives more than positives; so positive messages should counterbalance negative messages, ideally 3:1.

Don't be afraid to say, "I don't know." Make sure to commit to finding out and following up.

A helpful and valuable model is Compassion, Connection, Optimism (CCO). Compassion (statement demonstrating that you care/empathize with the intended audience); Connection (statement demonstrating commitment to helping/supporting/solving); Optimism (statement indicating a positive view of the future).

People are most likely to remember things they have heard in a specific order: based on primacy and recency: first, last, middle. Your most important message goes first and next most important goes last. Prioritize messages this way to enhance understanding.

Further Resources

Covello VE. Best practices in public health risk and crisis communication. *J Health Commun.* 2008;(Suppl. 1): 3-8.

Substance Abuse and Mental Health Services Administration (SAMHSA). *Communicating in a Crisis: Risk Communications Guidance for Public Officials.* Department of Health and Human Services Web site: <http://www.hhs.gov/od/ocuments/ohsp/Communication.pdf>. Published 2002.

Vandenberg N, Ureano B, Hamaska D, Fullerton C. Public health communication for disaster planning and response. *Int J Public Health.* 2008;33(4): 292-301.

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TRAINING TO SUPPORT RESEARCH

CSTS is actively involved in training our own staff, including our Research Assistants (RAs), Program Coordinators and Program Managers as research support teams for the future. A team of Research Assistants at CSTS support our scientists in many research-related tasks, including literature searches, data collection, data entry, data editing, writing meeting minutes, and writing summary reports of meetings and other activities. While performing these tasks, the RAs are trained by the scientists and leadership at CSTS in many aspects of the design and implementation of research projects. CSTS also provides professional development opportunities for the RAs. Through these tasks and activities, the RAs learn practical skills and gain experience in conducting research, and they become familiar with the process of manuscript preparation and the presentation of research findings to the scientific community and the general public. This training and experience prepares the RAs for advanced degree programs and careers in research and

other related fields.

Recently, we were pleased to have CSTS Research Assistants move on to further their education at Yale, Notre Dame, Johns Hopkins, Duke, USU, as well as other institutions. Opportunities our Research Assistants have pursued following their training and experience at CSTS include:

- PhD programs in psychology and related fields
- Medical school
- Law school
- Master degree programs in counseling, public health and social work
- Careers with the FBI

DISSEMINATION AND IMPLEMENTATION OF HEALTH AND RESEARCH KNOWLEDGE

Fact Sheets

Fact sheets are a long-standing communication tool of CSTS. Fact sheets are easy to understand, topic-focused tools that CSTS develops using expert knowledge to communicate the basics surrounding

an often difficult and/or crisis related issue. CSTS developed, updated and maintained a growing repository of fact sheets on disaster preparedness and response, risk and crisis communication, and health risk education. Fact sheets address the needs of different partners and stakeholders, including health care providers, family members, safety and emergency workers, policy makers, and community leaders. CSTS fact sheets provide readers with resources tailored to the unique aspects of each disaster event. The Center develops, updates and rapidly disseminates fact sheets, in real time, following major disasters and traumatic events such as community violence, terrorism and bioterrorism, and public health threats.

Fact sheets the Center recently developed include “Preparing, Responding and Recovering from a Mass Shooting,” “CBRN Events and Psychological Issues Healthcare Providers Need to Know,” “Military Leadership in Stressful Situations,” “Information for Healthcare Providers in Body Recovery from Mass Death,” “Information for Relief Workers in Body Recovery from Mass Death,” “Leadership Communication: Anticipating and Responding to Stressful Events” and “Coping with Stress Following a Mass Shooting.”

Website

We use the Center website (www.CSTSONline.org) to further our goal of disseminating relevant and timely information to a wide range of stakeholders. This year, we continued refining the website to make more material available, and to make the

material more easily accessible. Material available on the website includes current research citations, newsletters and conference reports. A “What’s New” section of the website highlights recent disaster fact sheets, research initiatives, publications, conference summaries and announcements of upcoming events. In 2016, the CSTS website was visited by 17,326 people. Most of those people (75%) were from the United States. The 12,884 people from the U.S. who visited our website represented all 50 states and the District of Columbia. The people outside the U.S. who visited our website were from 142 different countries.

Social Media

In 2016, the Center continued to expand its on-line presence through the use of social media. These social media resources allow for the timely dissemination of relevant content to our partners. Our Twitter followers increased by 7% and our Facebook followers increased by 41% in the past year. The Center added to its social media portfolio with the addition of a YouTube channel and new Facebook pages for three of our research studies to disseminate information about the Center and our research to interested members of the research community and the public.

We encourage people to visit and follow our postings via Twitter and Facebook to stay up-to-date on new CSTS activities and publications. “Like” us on Facebook at Center for the Study of Traumatic Stress and follow us on Twitter at @CSTS_USU.



Consultation

CONSULTATIVE PARTNERSHIPS

Since its inception, consultative relationships have been a cornerstone of CSTS's mission, including a wide variety of partner organizations both inside and outside government, and internationally. Such collaborations build bridges that provide opportunities to contribute our resources and expertise in the service of others and to monitor real time needs of partners and stakeholders. The following are examples of some of our long-standing consultations as well as some new consultations in 2016.

National Association of State Mental Health Program Directors (NASMHPD)

NASMHPD, a membership organization representing state mental health authorities (Commissioners), has a long-standing relationship with CSTS. The Commissioners are responsible for directing the public mental health system in their states, and address the many challenges inherent in those systems. CSTS and NASMHPD leadership are in frequent contact to share experience and meet mutual needs.

The leadership at NASMHPD changed in 2016 with the appointment of a new Executive Director. CSTS arranged for the new Executive Director to visit the Center for a day of orientation and information sharing. The result has been a continued strengthening of the long-term ties between CSTS and NASMHPD.

CSTS made a presentation about the Center as part of a webinar conducted by the NASMHPD. The webinar was attended by 13 State Mental Health Commissioners and 24 other representatives from 19 states. The purpose was to acquaint (and reacquaint) the State Commissioners of Mental Health with CSTS and explore ways in which CSTS can support the activities of, and shared goals with, the Commissioners.

CSTS made a presentation as part of a seminar for newly appointed State Mental Health Directors from twelve states. The presentation provided vital

information to the new state directors in areas such as trauma, working with the military, disaster preparedness and response, and crisis communication.

Substance Abuse and Mental Health Services Administration (SAMHSA)

SAMHSA is one of the oldest and most important federal partners for CSTS. Located within the Department of Health and Human Services, SAMHSA is the lead federal entity responsible for supporting and improving mental health services in the nation. CSTS continued to serve on the Disaster Distress Helpline (DDH) Steering Committee to provide guidance and feedback to this SAMHSA-funded resource that assists those needing help in their recovery from disasters.

University of Pittsburgh Medical Center, Center for Health Security

CSTS participated in a small group of health leaders convened by the Center for Health Security, University of Pittsburgh Medical Center. With funding from the Robert Wood Johnson Foundation, the group examined the adequacy and appropriateness of disaster health programs and approaches in light of changing health systems. They studied recent disaster events, anticipated potential changes in the health care system over the next decade, and convened several small groups to provide input and advice. CSTS provided the only behavioral health professional involved, and participated in review and input into subsequent reports and findings of the group.

The National Center for Disaster Medicine and Public Health (NCDMPH)

CSTS assisted in the distribution of NCDMPH's new video entitled, "Empowering the Community: Blindness and Emergency Preparedness." Using CSTS's network of partners, the video was distributed to key stakeholders who are well-positioned to use the video for training and consultation purposes, such as NASMHPD and SAMHSA, and to distrib-

ute it further. For example, NASMHPD leadership distributed it to all its members.

The American Psychiatric Association

CSTS has extended its knowledge and reach through working with the national medical associations educating and training on disaster mental health. This includes the American Psychiatric Association (APA). CSTS was part of the founding of the APA's efforts in disaster psychiatry and has been part of its Committee on Disaster Psychiatry since its founding in 1992. This year CSTS scientists provided formal and informal disaster consultation and education resources to APA District Branches in response a wide range of disaster events, including the lead water crisis in Flint, Hurricane Matthew, Fort Lauderdale airport shootings, and the Pulse Nightclub shootings in Orlando. Consultation services include guidance and resources on enhancing preparedness, response and recovery following disasters. Education fact sheets serve as an important resource for District Branches to assist them in rapidly disseminating critical, time-sensitive, actionable information to optimize the well-being of patients and other community members.

The Center Director continued his leadership role as the Chair for the APA Disaster Committee. Part of his work and other Center scientists working with the committee involved the development and dissemination of an APA position statement on mental health and climate change related disasters. This document will serve to guide the APA's involvement and partnership with national and global health entities working to mitigate the adverse mental health effects of weather-related disasters.

At the APA Annual Meeting, CSTS scientists presented a workshop on hospital-based violence, including mass shootings and acts of terrorism. During the interactive presentation, panel members and attendees discussed effective preparedness and response measures in health care settings as well as ethical considerations for providers as they balance compliance with response protocols, such as shelter-in-place or evacuation, with the duty to care for patients.

At the Annual Conference for the Institute of

Psychiatric Services, which was organized by the APA, the Center Director served as the moderator for a symposium on the mental health effects of a changing global climate and a Center scientist provided the keynote presentation addressing the intersection of weather-related disasters and psychiatric practice. The presentation served as a springboard for discussions about how to become more engaged in disaster mental health care and efforts to address mental health effects of weather-related disasters through effective preparedness and response.

GLOBAL HEALTH

Global Health Engagement

The Center Director participated in the USU School of Medicine Strategic Planning meeting to



discuss the mission of the School of Medicine as it relates to the DoD's initiatives in addressing national security, global health and global health engagement. As a result of this meeting, USU decided to consolidate

its activities into the USU Center for Global Health Engagement (CGHE). CSTS hosted representatives of the newly formed CGHE as the first in a series of ongoing meetings intended to increase CGHE's understanding of the roles of CSTS and the Department of Psychiatry.

A Center scientist was appointed as the U.S. Representative to the NATO Research Task Group "Leveraging Technology in Military Mental Health" as a result of his work on a previous NATO Exploratory Team. This Research Task Group (RTG) is a NATO-approved, three-year, multi-country effort to evaluate and understand the use of technological advances for improved mental health care in the military.

Center scientists participated in a meeting entitled "Out of the Shadows: Making Mental Health a Global Development Priority" at George Washington University sponsored by the World Bank Group and the World Health Organization. The meeting

was to share information, perspectives, and experiences regarding promoting enhanced focus on a wide variety of mental health issues. By participating in this meeting, CSTS made an important knowledge/relationship bridge between CSTS interests/activities and others around the world.

The Center provided consultation and training development support to the Navy South Command medical team in anticipation of humanitarian mission Operation Continuing Promise-17 (CP-17). This 90-day mission will involve Navy medical care being given to thousands of underserved individuals in several South American countries. In an effort to reduce adverse psychological symptoms in healthcare providers exposed to extremes of poverty, resource limitations, and severe medical conditions during this humanitarian mission, the Navy requested CSTS assistance in developing mental health and resilience preparedness training for providers and staff.

CSTS scientists contributed once again to the very limited published literature on the topic of mental health issues in military humanitarian response (see West & Morganstein, 2016 in the CSTS publications section). This chapter contains a review of the limited existing literature in an area with little guidance to assist those who oversee preparedness and response efforts to humanitarian activities. The chapter served as the foundation for the support efforts CSTS provided to the CP-17 team noted above.

Several CSTS members contributed to the article “Global Mental Health: Optimizing Uniformed Services Roles” published in *Joint Force Quarterly* (see Flynn, et al, 2016 in the CSTS publications section), a publication that is read by many political and military top leaders. Informing this audience is a significant step forward in assuring that the relevance and scope of mental health issues and opportunities in the field of global health engagement are reflected in policy development and implementation.

International Outreach

The Center sent a scientist to Ghana to support the DoD on a Defense Institute for Medical Operations (DIMO) mission. DIMO facilitates healthcare education and training to international partners by utilizing subject matter experts (SME) from the DoD

to develop curriculum and teach courses around the world. On this mission, CSTS provided global mental health education and training by sharing the fundamentals of Disaster Psychiatry with the Ghanaian Military. The mission, called *21st Century Warrior*, included basic trauma response, psychological first aid, handling remains, provider burnout, PTSD and suicide. Participants included 45 Ghana military Service members ranging from hospital administrators to psychiatrists and surgeons.

The Center continued working internationally in a collaboration with a seismologist at the Natural Resources Canada on issues of risk communication by seismologists in the wake of earthquakes, and CSTS published two articles related to this collaboration in 2016. There was a unique opportunity on February 5, 2016 to apply the content of this collaboration. On that day, there was an earthquake swarm of four small earthquakes in McAdam, New Brunswick (population approximately 1,200). The seismologist at the Natural Resources Canada shared a published article about communicating in the wake of these swarms with the Department of Earth Sciences at the University of New Brunswick in Fredericton. Two faculty members at the University used the article to craft a message, along with supporting links to more specific guidance in French and English, for the Mayor of the Village of McAdam to use when speaking to his community.

Extreme Weather-Related Disasters and Mental Health

Center scientists served as the only DoD representatives and co-authors for the mental health and well-being chapter of the landmark federal multi-agency report, “The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment,” delivered to the U.S. President and Congress during Public Health Week. This document, a first of its kind, details the current state of scientific knowledge regarding the impacts of weather-related disasters on health and serves to augment scientific information in previous U.S. National Climate Assessments. This report will serve to guide national and global policies on health, energy, transportation, communication and defense.

CSTS Publications in 2016

(Names in bold text are CSTS personnel)

JOURNAL ARTICLES

- Akula, N., Wendland, J. R., **Choi, K. H.**, & McMahon, F. J. (2016). An integrative genomic study implicates the post-synaptic density in the pathogenesis of bipolar disorder. *Neuropsychopharmacology*. *41*, 886-895.
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- Flynn, B. W., Morganstein, J. C., Ursano, R. J., Regier, D. A., West, J. C., Wynn, G. H., Benedek, D. M., & Fullerton, C. S.** (2016). Global mental health: Optimizing uniformed services roles. *Joint Force Quarterly*. 83.
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BOOK CHAPTERS

Cozza, S. J. (2016). Parenting in military families faced with combat related injury, illness or death. In A. H. Gewirtz, & A. M. Youssef (Eds.), *Parenting and Children's Resilience in Military Families* (pp. 151-174). Switzerland: Springer International.

Cozza, S. J. (2016). Family-focused interventions for PTSD: Lessons from military families. In **D. M. Benedek & G. H. Wynn** (Eds.), *Complementary and Alternative Medicine for PTSD* (pp. 179-202) New York, NY: Oxford University Press.

Dodgen, D., Donato, D., Kelly, N., La Greca, A., **Morganstein, J.,** Reser, J. P., Ruzek, J., Schweitzer, S., Shimamoto, M. M., Thigpen Tart, K., & **Ursano R. J.** (2016). Ch. 8: Mental Health and Well-Being. *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment* (pp. 217-246). Washington, DC: U.S. Global Change Research Program.

Morganstein J. C., West J. C., Huff L. A., Flynn B. W., Fullerton C. S., Benedek D. M., & Ursano

R. J. (2016). Psychosocial Responses to Disaster and Exposures: Distress Reactions, Health Risk Behavior, and Mental Disorders. In J. Shigemura, R.K. Chhem (Eds.), *Mental Health and Social Issues Following a Nuclear Accident — The Case of Fukushima*. Tokyo, Japan: Springer

West J. C., & Morganstein J. C. (2016). Psychological Effects of Military Personnel Assigned to Humanitarian Assistance and Disaster Response Missions. In G. Christodoulou, J. Mezzich, N. Christodoulou, D. Lecic-Tosevski, (Eds.). *Disasters: Mental Health Context and Responses*. Cambridge Scholars Publishing. Cambridge Scholars Publishing. Newcastle, UK.

BOOKS/VOLUMES

Benedek, D. M., & Wynn, G. H. (Eds.). *Complementary and Alternative Medicine for PTSD*. Oxford University Press, New York, 2016.

Prager, E. M., **Wynn, G. H., & Ursano, R. J.,** (Eds.). (2016). Special Issue: The Amygdala: Dysfunction, Hyperfunction and Connectivity. Hoboken, NJ: John Wiley & Sons.



CSTS Presentations, Briefings, Interviews and Awards in 2016

(The names in bold text are CSTS personnel.)

PRESENTATIONS

- Medical and Public Health Preparedness: Mental Health and Resilience. **Ursano, R. J.** Presented at forum on Medical and Public Health Preparedness for Catastrophic Events, Institute of Medicine, Washington, DC, February, 2016.
- Complementary and Alternative Medicine for Posttraumatic Stress Disorder. **Wynn, G. H.** Presented at Grand Rounds, Department of Psychiatry, Walter Reed National Military Medical Center, Bethesda, MD, February 2016.
- DSM-5, RDoC, and the Language of God. **Regier, D. A.** Presented at the American Psychopathological Association Annual Meeting, New York, NY, March, 2016.
- Introduction to the Center for the Study of Traumatic Stress. **Flynn, B. W.** Presented in a webinar hosted by the National Association of Mental Health Program Directors, March, 2016.
- Update on Antipsychotics. **Wynn, G. H.,** Presented at Walter Reed National Military Medical Center Department of Psychiatry, Bethesda, MD, March, 2016.
- Arts & the Brain: Art Therapy & PTSD — The Practice & Science of Healing with Art in the Military. **Wynn, G. H.** & Walker, M. Presented at Strathmore Arts Center, Bethesda, MD, March, 2016.
- An ecological momentary assessment approach to the study of post-traumatic stress symptoms in U.S. military service members. **Biggs, Q. M., Fullerton, C. S., Probe, D., Carr, R. B., Dacuyan, N., Franz, M., Paxton, M., Wang, L., & Ursano, R. J.** Poster presented at the meeting of the Society of Behavioral Medicine, Washington, DC, April, 2016.
- Behavioral Health Factors in Preparedness, Response and Recovery. **Flynn, B. W.** & Barbara, J. Presented at the quarterly Local Emergency Planning Meeting sponsored by the Office of Emergency Operations of Howard County Maryland, Howard County, MD. April, 2016.
- Crisis Management, Disasters & Crisis Communication. **Flynn, B. W., & Morganstein, J. C.** Presented at the Newly Appointed State Mental Health Directors Training Conference, National Association of State Mental Health Program Directors, Falls Church, VA, April, 2016.
- Military Medical Response to Mass Violence: A Public Health Approach. **Morganstein, J. C., West, J. C., & Benedek, D. M.** Presented at the Annual Mental Health Training Conference for Regional Medical Psychiatrists, Department of State, Atlanta, GA, May, 2016.
- The National Military Family Bereavement Study. **Cozza, S. J.** Presented at the 22nd Annual TAPS National Military Survivor Seminar, Arlington, VA, May, 2016.
- Riluzole Augmentation for PTSD. **West, J. C.** Presented at the Military Operational Medical Research Program Interim Review Panel, Fort Detrick, MD, June, 2016.
- DSM-5 Field Trials in Large Academic Settings: A Pragmatic Test-Retest Reliability Study. **Regier, D. A.** Presented at the Joint Statistical Meetings, Chicago, IL, August, 2016.
- Coordinated Disaster Response for Offsite Facilities using a Customized Emergency Action Plan. **Meyer, E. G., Hastings, J. M., Flynn, B. W., West, J. C., & Morganstein, J. C.** Poster presentation at the Disaster Health Education Symposium: Innovations for Tomorrow, National Center for Disaster Medicine and Public Health, Bethesda, MD, September, 2016.
- Coping with Traumatic Stress. **Morganstein, J. C.** Presented at the Reintegration from High-Threat Posts and Military Deployments seminar, Drug Enforcement Administration, Department of Justice, Quantico, VA, September, 2016.
- Education Fact Sheets: Tailored and Timely Disaster Mental Health Response. **Meyer, E. G., Hastings,**

- J. M., Flynn, B. W., West, J. C., & Morganstein, J. C.** Poster presentation at the Disaster Health Education Symposium: Innovations for Tomorrow, National Center for Disaster Medicine and Public Health, Bethesda, MD, September, 2016.
- Troop Educational for Army Morale (TEAM): A post deployment educational intervention for Mortuary Affairs Soldiers. **Biggs, Q. M., Fullerton, C. S., McCarroll, J. E., Liu, X., Wang, L., Dacuyan, N., Zatzick, D., & Ursano, R. J.** Poster presentation at the Disaster Health Education Symposium: Innovations for Tomorrow, National Center for Disaster Medicine and Public Health, Bethesda, MD, September, 2016.
- Coordinated Disaster Response for Offsite Facilities using a Customized Emergency Action Plan. **Meyer E. G., Hastings, J. M., Flynn, B. W., West, J. C., & Morganstein, J. C.** Poster presentation at the Disaster Health Education Symposium: Innovations for Tomorrow, National Center for Disaster Medicine and Public Health, Bethesda, MD, September, 2016.
- Mobile Applications in Just-in-Time Learning for Disaster Health Professionals. **Liu, A.,** Strauss-Riggs, K. Poster presentation at the Disaster Health Education Symposium: Innovations for Tomorrow, National Center for Disaster Medicine and Public Health, Bethesda, MD, September, 2016.
- Counterintuitive Victim Behavior: Expert Testimony in Military Court's Martial. **Benedek, D. M.** Presented at the annual meeting of the American Academy of Psychiatry and the Law (AAPL), Portland, OR, October, 2016.
- Disaster Mental Health and Climate Change: Making the Connection. **Morganstein, J. C.** Keynote presented at the Annual Conference, Institute of Psychiatric Services, American Psychiatric Association, Washington, DC, October, 2016.
- PTSD and Other Trauma and Stressor Related Disorders: from PTSD to Suicide. **Ursano, R. J.** Presented as the Joseph P. Tupin Lecturer and Visiting Professor during Grand Rounds, University of California Davis Department of Psychiatry and Behavioral Sciences, Davis, CA, October, 2016.
- Behavioral Health Factors in Preparedness, Response, and Recovery. **Flynn, B. W.** Presented at a meeting of the Carroll County Disaster Preparedness Group (DPG), Westminster, MD, November, 2016.
- Disaster Psychiatry: Critical Concepts. **Morganstein, J. C.** Presented at the Western New York Psychiatric Society, American Psychiatric Association, Buffalo, NY, November, 2016.
- Terrorism-Related Grief Reactions Fifteen Years After 9-11: Public Health Implications. **Fisher, J. E., Fetsch, M., Zhou, J., Dinh, H. & Cozza, S. J.** Presented the 32nd Annual Meeting of the International Society for Traumatic Stress Studies, Dallas, TX, November, 2016.
- Military Family Members Bereaved by Sudden and Violent Death: Differentiating Grief, Depression- and Trauma-related Symptom Clusters. **Cozza, S. J., Fisher, J. E., Zhou, J., Fullerton, C. S., & Ursano, R. J.** Presented at the 32nd Annual Meeting of the International Society for Traumatic Stress Studies, Dallas, TX, November, 2016.
- Performance of DSM-5 Criteria for Persistent Complex Bereavement Disorder. **Mauro, C., Shear, M. K., Cozza, S.** Reynolds, C., Simon, N., Zisook, S., Skritskaya, N., Wang, Y., Lebowitz, B., Duan, N., Gribbin, C., **Fisher, J. E., Zhou, J., Ortiz, C., Fullerton, C. S., Ursano, R. J.,** Wall, M., Ghesquiere, A., First, M., & Glickman, K. Presented at the 32nd Annual Meeting of the International Society for Traumatic Stress Studies, Dallas, TX, November, 2016.
- The protective effect of social and support networks among US Army Soldiers at risk for suicide. **Dempsey, C. L., Benedek, D.,** Nock, M. K., Cox, K. L., **Wu, H., Wang, L., Karp, J., Ng, T. H., & Long, W.** Poster presentation at the 32nd Annual Meeting of the International Society for Traumatic Stress Studies, Dallas, TX, November, 2016.
- Couple Reports of Family Functioning following Combat-related Injuries: Association of Individual Psychiatric Symptoms with Family Function and within Couple Agreement. **Whaley, G., Todd, K., Herman, M., Engle, K., & Cozza, S. J.** Poster presentation at the 32nd Annual Meeting of the International Society for Traumatic Stress Studies, Dallas, TX, November, 2016.
- Trauma and Stressor Related Disorders. **Ursano, R. J.** Presented as part of a six part webinar series called "Understanding War Trauma," American Psychoanalytic Association, December, 2016.

BRIEFINGS AND INTERVIEWS

- Dr. Stephen Cozza was a guest speaker at the White House for a forum on “Operation Educate the Educators: Committed to Recognizing and Supporting our Military-Connected Students.” The forum was hosted by Second Lady Dr. Jill Biden who is a military mom and lifelong educator. The forum was part of the “Month of the Military Child” celebration and part of Dr. Biden’s “Joining Forces” initiative.
- Dr. Ursano presented an update of the status and findings for Army STARRS and STARRS-LS at the Military Operational Medicine Research Program (MOMRP) Suicide Prevention Interim Progress Report (IPR) at Fort Detrick, Maryland.
- Dr. Ursano held interviews with several news outlets in anticipation of the publication, “Risk Factors, Methods, and Timing of Suicide Attempts Among US Army Soldiers.” The news outlets included: *USA Today*, *Wall Street Journal*, *Reuters*, *CBS News Radio*, *MedicalResearch.com*, *STAT News*, *FiveThirtyEight*, *Marine Corps Times*, *NBC News* (national), *WGN Radio* (Chicago), *Medical Daily*, *Military Times*, *Health Day News* and *Stars and Stripes*.
- Dr. Ursano held a podcast interview with Dr. Abbey Strauss of “The Experts Speak” project. The podcast focused on mental health responses after disasters and discussed common post-event reactions, interventions and support methods.
- Dr. Ursano was interviewed by the *Orlando Sentinel* about Army STARRS.
- Dr. Ursano made a presentation at the STARRS-LS Government Steering Committee (GSC) meeting at the Office of the Deputy Undersecretary of the Army. The presentation described the progress made by the research team on the STARRS-LS project. Dr. Gifford, Paul Hurwitz and Susan Moss also attended the meeting.
- Dr. Ursano was interviewed by *Army News Service* about results from the Army STARRS project and the continuation of the research under the STARRS-LS project.
- Dr. Wynn was a guest on a Public Radio segment called “SmartTalk” as a result of being a panel member for a showing of the documentary film “Thank you for your service” at the U.S. Army

Heritage and Education Center at the U.S. Army War College.

- Dr. Wynn was quoted in *The New York Times* regarding complementary and alternative medicine for PTSD.
- Dr. Wynn was a guest on the “Calling All Veterans” radio show on KVSF in Santa Fe, New Mexico. He discussed military mental health, healthcare of veterans, and complementary and alternative medicine for PTSD related to the recent publication of his book on the topic.

AWARDS

- LTC Wynn was given the Class of 2018 Engaging Module Director Award as voted on by the Class of 2018. It is given to the Module Director that had the greatest impact on pre-clerkship education and who set a standard to which all School of Medicine faculty members should aspire.
- LTC Wynn was awarded the Meritorious Service Medal for his work as Research Psychiatrist, Department of Military Psychiatry, Walter Reed Army Institute of Research. LTC Wynn’s hard work and dedication to the mission led to cutting edge treatments for behavioral health problems and critical programs designed to build the resilience of Soldiers and families.
- LTC Wynn was awarded the Army Medical Department (AMEDD) “A” Proficiency Designator which recognizes the highest level of professional achievement within each AMEDD Corps’ specialty.
- Dr. Wynn was formally appointed as the U.S. Representative to the NATO Technical Team (HFM-279 ‘Leveraging Technology in Military Mental Health’) which is a three year, multi-country effort to evaluate and understand the use of technological advances for improved care of mental health in the military.
- Dr. Ursano was the Joseph P. Tupin Lecturer and Visiting Professor at the University of California, Davis.
- LTC Wynn was inducted into The Order of Medical Military Merit which recognizes excellence among Army Medical Department personnel.

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Riluzole Augmentation Treatment for Complicated Posttraumatic Stress Disorder	USAMRMC
PTSD/TBI Clinical Consortium Coordinating Center and Clinical Sites Award (INTRuST)	UCSD
Traumatic Stress and Biomarkers in a Military Population	USAMRMC
Education of the Safety and Pharmacokinetics of the FAAH Inhibitor URB597	USAMRMC
Brain Bank Project: Consortium for the Translational Neuroscience and Treatment of Stress and PTSD (VA Biorepository Brain Bank: PTSD Brain Bank Protocol)	VA
Study to Assess Risk and Resilience in Servicemembers — Longitudinal Study (STARRS-LS)	DHP
Behavioral-based Predictors of Workplace Violence in the Army STARRS	Harvard
Family Violence and Trauma Project	IMCOM
The Impact of Service Member Death on Military Families: A National Study of Bereavement	CDMRP
GREAT-SF (Grief-Focused Resilience Activities and Training for Surviving Families): An Online Selective Intervention for Bereaved Military Families	CDMRP
Bereavement due to Terrorism: Families of those who died on Air India Flight 182 or on September 11th	Voices of September 11
Military-Related Risk for Child Neglect in DoD Families: A Population Study to Inform Future DoD Child Neglect Prevention Efforts	MCFP
Enhancing Fear Extinction via Angiotensin Type 1 Receptor Inhibition: A Randomized Controlled Trial in Posttraumatic Stress Disorder	UCSD
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The Center for the Study of Traumatic Stress would like to acknowledge and thank our partners and collaborators. The Center has worked with organizations in the public and private sector through research partnerships, project collaborations, consultations and trainings.

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