

Center for the Study of Traumatic Stress

2021 Annual Report

CSTS





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“...As variants emerge, we all remain vigilant — for the health of our Center members, the Department of Defense (DoD), and the nation. The Center for the Study of Traumatic Stress (CSTS) continues its consultation and research to better understand the effect of COVID-19 on civilian populations globally, as well as on the active duty and the National Guard components that were activated across the United States in support of the response to the COVID-19 pandemic.”

— Dr. Robert J. Ursano

From the Director

Dear Center Colleagues and Friends,



In 2021, we continued our focus on and attention to COVID-19. Its impact on the nation and the world has been unprecedented, with nearly a million deaths resulting in decreased life expectancy in the United States. As

variants emerge, we all remain vigilant — for the health of our Center members, the Department of Defense (DoD), and the nation. The Center for the Study of Traumatic Stress (CSTS) continues its consultation and research to better understand the effect of COVID-19 on civilian populations globally, as well as on the active duty and the National Guard components that were activated across the United States in support of the response to the COVID-19 pandemic. CSTS has developed numerous support materials that have been widely disseminated and recognized across the nation and throughout national and international medical organizations. The Center's work to sustain the resilience of health care workers has been an important model of medical support.

CSTS is an integral part of the Department of Psychiatry, Uniformed Services University (USU) School of Medicine (America's Medical School). As many of you know, CSTS was established in 1987 and has been fulfilling our mission to mitigate the impact of trauma, from exposure to war, disasters, terrorism, community violence, and public health threats. The Center is fully engaged in activities that support the Strategic Framework and mission of USU, as well as the Military Health System, and the broader mission of the DoD. Through our broad range of activities, we sustain national readiness, enhance national security, and serve an essential role for the DoD and the nation, particularly during the COVID-19 pandemic.

The Center's mission is accomplished through a multi-faceted approach that includes leadership, research, training, education, service, outreach, collaboration, consultation, and global health engagement. CSTS continues to have an outstanding multi-disciplinary and collaborative team of scientists, educators, clinicians, staff, and leaders to carry out these activities and advance our goals and our mission, as well as enhance national preparedness.

While remaining focused on responding to the COVID-19 pandemic, the Center has continued our ongoing work on posttraumatic stress disorder (PTSD), traumatic brain injury (TBI), suicide and suicide-related behavior, suicide prevention, and disaster response and preparedness. CSTS helps inform our nation's policies and responses to trauma from natural and human-made disasters and, especially at this time, the health emergency response to COVID-19.

The Center's work begins in our laboratories and extends to our communities, nation, and across the globe. Importantly, we bridge science from the gene, to the person, to the world. We translate knowledge to action by providing rapid consultation, education, and knowledge support to personnel who respond to the health needs of Service members, their families, and personnel who respond to disasters, public health threats, and global crises, such as the COVID-19 pandemic. CSTS is uniquely situated to bridge the fields of military psychiatry and disaster psychiatry.

The Center uses groundbreaking approaches to neuroscience, and conducts innovative research on relevant and timely topics, such as the current pandemic, suicidal behavior in the Army, the impact of death and bereavement on military families, novel treatments for PTSD, and the role of ketamine in treatment. Our advanced analytic activities involve using innovative techniques, such as machine learning, complex algorithms, predictive analytics,

Continued on page 2

From the Director, continued from page 1

and, more recently, whole genome sequencing in collaboration with the Center for Military Precision Health (CMPH) of USU. We use data mining techniques and state-of-the-art statistical methods to analyze previously untapped data sources independently and jointly with other data to gain new insights, resulting in better and faster decision-making and improved health.

CSTS has provided just-in-time educational resources and surveillance assessments for DoD and our nation's health care. The Center has also developed collaborations with the New York National Guard as they respond to the effects of COVID-19. Since the fall 2020 surge in COVID-19 cases, we have been engaged as subject matter experts and advisors to the New York City health care system. We have engaged with our partner and stakeholder organizations to collaborate and provide resources and assistance in responding to COVID-19. Further, Center personnel continued to engage with their professional contacts and networks, disseminate resources, and provide consultation when needed. We also participated in assessing the impact of COVID-19 at USU. This culminated in the development and release of a resilience survey. The results of the resilience survey helped inform USU leadership. Please visit the Center's website (www.cstsonline.org) and the Center's dedicated COVID-19 response page (<https://www.cstsonline.org/resources/resource-master-list/coronavirus-and-emerging-infectious-disease-outbreaks-response>) for the latest updates in our COVID-19 activities. This work started in 2020 and is ongoing.

In this Annual Report, you can read summaries of our contributions to enhance psychological health and resilience, and our work to prevent and mitigate the negative consequences of trauma on individuals, families, communities, and the nation, and in particular, learn about our COVID-19 consultation and research initiatives. Our goal is to improve trauma-related care by preparing treatment providers to address the impact of trauma and its far-reaching effects, thereby building a more trauma-informed environment across the continuum of our military and civilian health care systems.

As we develop this report in early 2022, CSTS is closely involved with providing support for those delivering mental health care in Ukraine. This support now represents substantial materials translated into both Ukrainian and Russian, as well as several other languages. Through our work with the American Psychiatric Association and our colleagues at Walter Reed Army Institute of Research and in the Netherlands, as well as those in Ukraine, we are directly supporting those who deliver care.

On behalf of everyone at CSTS, I extend our appreciation to all of our colleagues and friends who have collaborated with us and assisted us throughout 2021 to help us support the Military Health System, the DoD, and our nation, and with our COVID-19 response.

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



While remaining focused on responding to the COVID-19 pandemic, the Center has continued our ongoing work on posttraumatic stress disorder (PTSD), traumatic brain injury (TBI), suicide and suicide-related behavior, suicide prevention, and disaster response and preparedness.

— Robert J. Ursano, MD

Our Mission

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

The Center's work includes a broad range of trauma exposures, including combat, terrorism, natural and human-made disasters, public health threats, such as the COVID-19 pandemic, and humanitarian operations. CSTS has been involved in nearly every major

disaster our nation has experienced in the past 35 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, health care, public health, and academia. CSTS contributes to advancing trauma-informed care by providing leadership in research, education, training, consultation, global health, and service.



COVID-19 Response Highlights

The Center continues to be involved with the DoD's COVID-19 pandemic response. CSTS Scientists and staff developed and maintain key collaborations with the National Guard Bureau (NGB) and other entities within New York City. In addition, the Center has been critical in the development of COVID-19 knowledge products, such as fact sheets, pocket cards, and infographics on critical topics,

including how to talk to children about COVID-19, how to manage grief during the pandemic, and how to establish better sleep patterns while working remotely or in new environments. CSTS has been instrumental in helping USU leadership assess the impact of COVID-19 on the USU workforce and students through consultation on the USU Resilience Operational Assessment.

HIGHLIGHTS OF THE CENTER'S COVID-19 RESPONSE

Activities with the National Guard Bureau

The Center worked with the NGB to help the New York National Guard (NYNG) develop a rapid public health surveillance assessment to inform leadership and provide action-oriented recommendations related to stressors, resilience factors, and behavioral health responses. In addition, CSTS Scientists developed training materials designed to reduce distress and increase resiliency in NG personnel who were called upon to handle the remains of the dead. CSTS continues to collaborate with the

NGB and NYNG with education, consultation, and ongoing surveillance.

Activities with New York City

The Mayor of New York City (NYC) and the United States Northern Command (NORTHCOM) Commander requested support from CSTS to assist NYC during the initial COVID-19 case surge. The 5-module resilience training program continued being delivered in 2021 within the NYC health care system. Center Scientists also continued to provide consultation support to the Mount Sinai Health System in addressing initial and ongoing challenges for health care workers during the pandemic.

Uniformed Services University COVID-19 Resilience Operational Assessment

CSTS assisted in the development of the operational assessment of students and personnel working at USU to better understand USU operations during the COVID-19 pandemic. The assessment examined factors pertaining to the experiences of students and personnel, including university resources, leadership, experience working/teleworking, and work/life balance during the COVID-19 pandemic. This assessment was designed to better understand the impact of the COVID-19 pandemic on work and morale, support, and health. In particular, the assessment informed work taskings and organizational support and resources. CSTS developed a follow-up assessment, administered in 2021, in order to further support the USU mission.

These highlights demonstrate some, but not all, of the Center's substantial contributions to mitigate the impact of COVID-19. In the following pages, we detail the Center's research, teaching, and consultation.

MA-STAR

Mortuary Affairs – Select, Train, Assist, Reset

Leader Support for Service Members Working with Human Remains



PRE-DEPLOYMENT	
<p>S ELECT</p> <ul style="list-style-type: none"> ■ Select the team ■ Assign Service Members with recent death or serious stressors to other duties if possible <p>T RAIN</p> <ul style="list-style-type: none"> ■ Explain the mission, tasks, and safety considerations ■ Prepare for the expected mission 	<ul style="list-style-type: none"> ■ Tell the team: <ul style="list-style-type: none"> » “Feeling upset because it is ugly means you are a Service Member who cares” » “Try not to look at the faces and hands of the deceased” » “Use masking smells or breath through your mouth to avoid the odors”
DURING DEPLOYMENT	POST-DEPLOYMENT
<p>A SSIST</p> <ul style="list-style-type: none"> ■ Walk around and talk with team members ■ Watch for signs of distress ■ Encourage unit members to support each other ■ Support team members who have difficulty ■ Remind the team of the value of their work 	<p>R ESSET</p> <ul style="list-style-type: none"> ■ Discuss and share accomplishments ■ Provide resources and time for the team to support each other ■ Encourage the team to complete the PDHA & PDHRA to protect their health

Research

CSTS is involved in a broad range of research, including epidemiological, clinical, and laboratory research designed to support the Military Health System in its efforts to promote military readiness for both peacetime and wartime, and to deliver integrated, affordable, effective, and high quality health services. CSTS research encompasses investigations ranging from the causes of suicide in Service members, to the psychological responses to trauma and disasters, to the symptomatology and treatment of PTSD.

RESEARCH ON SERVICE MEMBERS

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

Formerly the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS)

The logo for STARRS-LS features the word "STARRS-LS" in a bold, black, sans-serif font. The letter "A" is replaced by a yellow star with a black outline. The letters "S" and "L" are significantly larger than the others, creating a stylized, elongated appearance.

Study to Assess Risk and Resilience in Servicemembers - Longitudinal Study

STARRS-LS is the continuation of a research project that began more than ten years ago to address the increasing and persistent problem of suicide among Army personnel. The original research project, Army STARRS, was conducted from 2009 to 2015. The first iteration of STARRS-LS began in 2015 and ended in 2020. The current STARRS-LS continuation project began in 2020 and will run through 2025 and possibly beyond. The Army STARRS and STARRS-LS projects were designed and conducted under the scientific direction and project management oversight of CSTS through a collaborative effort involving USU, the University of California, San Diego (UCSD), Harvard Medical School, and the University of Michigan.

Army STARRS, funded by the Army, included a series of several distinct but integrated studies designed to comprehensively examine the mental health and resilience of active duty Soldiers, in-

cluding Regular Army, Army National Guard, and activated Army Reserve. The project involved large representative samples of Soldiers, making it the largest research effort of mental health risk and resilience ever conducted among military personnel. The largest of the studies was a historical cohort study of all Soldiers (more than 1.6 million) on active duty from 2004 to 2009. Army STARRS also included cross-sectional studies, a four-wave longitudinal study, and two case-control studies, that involved collecting data directly from a combined total of more than 100,000 active duty Soldiers throughout the U.S. and overseas. The studies included administering questionnaires and neurocognitive tests, collecting blood samples, and performing state-of-the-art data analyses and genetic studies.

CSTS is expanding the size, extending the time-frame, and enhancing the Army STARRS research through a five-year DoD-funded project, STARRS-LS. Under STARRS-LS, the Center is continuing to use the Army STARRS platforms, systems, and data to conduct further analyses and to collect additional follow-up data for three cohorts of Soldiers. The historical cohort established under Army STARRS has been expanded in size and extended in duration by including additional Soldiers and obtaining an additional ten years of Army/DoD administrative data for the period from 2010 to 2019. This historical cohort follow-up study now includes all active duty Soldiers (approximately 3 million) across the sixteen-year period from 2004 to 2019.

For another STARRS-LS cohort, the research team has been locating, contacting, and collecting survey data every two years from a representative sample of approximately 15,000 Soldiers who participated in Army STARRS. A total of four survey waves will be collected from this cohort over an eight-year period. Since one of the survey data collection waves began in 2021 during the COVID-19 pandemic, the research team designed and added a COVID-19 section to the survey that included 22 questions about the respondents' experiences during the pandemic

and the impact it may have had on them. This offers a unique opportunity that will allow the research team to assess and compare the mental health and behavioral health effects among a representative sample of Soldiers, both pre-pandemic and, eventually, post-pandemic.

Due to the abundance of actionable findings produced by the STARRS research, the Army established a workgroup called the STARRS Research Advisory Team (SRAT). The SRAT comprises Army and DoD personnel tasked to review STARRS findings and recommend actions that the Army and/or DoD can take based on those findings. The STARRS Principal Investigators continued to meet with the SRAT on a quarterly basis throughout 2021 to present STARRS findings and discuss how to best translate the research findings into Army and DoD actions.

The Army and DoD also brought the Department of Veterans Affairs (VA) into STARRS-LS because over the years, an increasing number (now a majority) of the STARRS-LS participants have separated from the Army and transitioned to civilian life. The STARRS research team has been collaborating with VA scientists to examine subgroups of importance and outcomes of interest to the VA.

Throughout 2021, the research team continued to publish actionable findings for the Army and DoD, and conducted briefings of the research progress and findings. These include briefings to the STARRS Government Steering Committee and to senior DoD and Army leadership. As of the end of 2020, the research team had published a total of 97 STARRS publications in peer-reviewed scientific journals. During 2021, the team published an additional 11 publications, for a total of 108 publications. A summary of all of the STARRS publications can be found on the CSTS website at <https://www.cstsonline.org/whats-new/wn-armystarrs>.

During 2021, the Army and DoD continued to use STARRS findings and knowledge to develop reports, publications, leadership tools, and risk mitigation strategies. The STARRS research is among the first in the nation to demonstrate the value of machine learning and predictive models as clinical tools for military health care.

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

U.S. Army Mortuary Affairs (MA) Soldiers represent a unique population of Soldiers who are exposed to death, deployment-related stressors, and work in combat and other extreme environments.



Drs. Biggs and Cabrera at the Grady Early Forensic Anthropology Laboratory (GEFARL).

Their role is to collect, tentatively identify, and evacuate the remains of the deceased from the theater of war and other mission sites. These activities increase their risk for trauma-related distress and disorders.

This is the longest ongoing study to examine the individual, unit, and family stressors, risk factors, and resiliency of MA Soldiers. The study includes quantitative data collected through questionnaires, qualitative data collected through semi-structured interviews, and biomarker data collected through saliva samples. Questionnaires are group-administered to MA detachments approximately one week before and after deployment to the Middle East. Empirical and descriptive data are collected on factors such as PTSD, depression, distress (e.g., anger, hostility, somatization), substance use, and instrumental and emotional support. Interviews are conducted after humanitarian and Defense Support of Civil Authorities (DSCA) missions in order to learn about the challenges of working with human remains in diverse disaster situations. Biomarker data are analyzed for potential DNA- and RNA-related indicators of stress and resiliency. In 2021,

Reserve MA Soldiers from the 673rd Quartermaster Company (QM CO) (Dover, Delaware), 387th QM CO (Costa Mesa, California), and 246th QM CO (Mayaguez, Puerto Rico) participated in the study by completing deployment-related questionnaires. A total of 237 questionnaires were collected in 2021. All questionnaires were administered online due to the COVID-19 pandemic. Overall, the study questionnaire has been administered 77 times, and more than 3,600 questionnaires have been collected since the study began in 2005.

Findings from the MA study target resiliency, preparation, training, and education of Soldiers for deployment and working with the deceased. In 2021, quantitative data analyses included an examination of deployments, traumatic exposures, and PTSD and depression symptoms and probable disorder. A current manuscript addresses these topics as well as health risk behaviors such as alcohol and tobacco use. Study findings inform education, trainings, and consultations related to death and MA operations. In 2021, this included support to the Joint Mortuary Affairs Center (JMAC), with whom we have worked for over 20 years, as well as establishing and strengthening relations with the Central Joint Mortuary Affairs Board, DSCA, the U.S. Northern Command (USNORTHCOM), the United States Army North (ARNORTH), the North American Aerospace Defense Command (NORAD), and the NGB. Principal topics included the lessons learned from interviews with MA Soldiers who deployed in support of the 2020 fatality surge operations in New York City and Washington, DC. Products developed included the *Mortuary Affairs — Select, Train, Assist, Reset* (MA-STAR) *Pocket Card*, a just-in-time resilience support resource for National Guard personnel and other military and civilian personnel who are untrained and inexperienced in handling human remains. In addition, posters describing the MA-STAR Pocket Card, pre- and post-deployment depression in MA Soldiers were presented.

New in 2021, in order to better understand how MA Soldiers are trained for work with human remains, a CSTS study investigator observed the *Mortuary Affairs Specialist Advanced Individual*

Training (AIT) courses, which were conducted at the USU Anatomical Laboratory. The lab experience addresses a primary aim of the AIT course, which is to gradually expose and acclimate MA Soldiers to work with remains. For many MA Soldiers, this is their first hands-on exposure to human remains. Also, scientists from CSTS attended workshops at the Forensic Anthropology Center at Texas State (FACTS) in order to learn more about what happens to a body after death and the methods available for identifying partial remains.

Troop Education for Army Morale (TEAM)

TEAM is a novel stress management and resilience-building early intervention program designed to improve post-deployment readjustment. It has been offered to U.S. Army MA Soldiers, a group at high risk for psychological distress due to their exposure to human remains and the combat environment. The intervention is based on the five evidence-informed principles of Psychological First Aid (PFA): safety, calming, connectedness, self-efficacy, and hope/optimism, and is delivered through four group workshops, informational handouts, a dedicated website, and phone and email support services. A total of 125 MA Soldiers in 10 cohorts participated in the study. Although the intervention did not reduce rates of PTSD, higher workshop participation was associated with fewer posttraumatic symptoms and higher satisfaction with the TEAM program. Of the variety of skills that the trainings offered, calming (relaxation training) and problem solving were two of the skills reported to be most helpful. Importantly, the TEAM intervention materials were recently adapted to an online format that allows for remote video conferencing and sharing of materials electronically when individuals are not able to meet in person. The online TEAM intervention content can be delivered through group sessions at specified intervals (e.g., once a week) or posted on a dedicated website for 24/7 access. The intervention content has been adapted for use in other military and civilian populations, including medical personnel, police, firefighters, disaster workers, mortuary personnel, or others who work with the dead.

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

The Daily Diary Study tracks real-time changes in posttraumatic stress symptoms of U.S. Service members. This is accomplished using a novel ecological momentary assessment methodology that captures symptom change within and across days. The Daily Diary Study represents the cutting-edge in psychological assessment methodology, measures, equipment, technology, and research design. The study examines the relationship between variability in posttraumatic stress symptoms and psychiatric disorders, sleep, health risk behaviors (e.g., alcohol and tobacco use), pain, and other areas of health and functioning. Participants complete daily assessments of posttraumatic stress symptoms four times daily for 15 consecutive days on electronic tablets, using a sophisticated software application developed for use in this study. PTSD and depression are assessed at baseline and in one- and three-month follow-up assessments. Participants have the option to wear a wrist actigraph to objectively measure sleep and complement self-reports of sleep during the daily assessment period. Participants also have the option to donate saliva and/or blood samples for genetic analysis to identify potential genetic biomarkers and gene-environment interactions that may distinguish and/or mediate stress responses and resilience to stress-related disorders. Recruitment is conducted within a military medical treatment facility, and in 2021, recruitment was paused to protect the safety of participants and study staff due to the COVID-19 pandemic. In total, 183 subjects have been recruited since the study began. In 2021, data analyses included an examination of daily variation in PTSD symptom clusters as well as suicidal ideation in individuals with and without PTSD. A manuscript was published in *BMC Psychiatry* examining night-to-night and weekday versus weekend variation in sleep disturbances (i.e., short sleep duration, poor sleep quality, trouble falling asleep, and difficulty staying asleep) in individuals with and without PTSD. In addition, in 2021 all study questionnaires were reviewed and updated to ensure that the assessments remain at the forefront of trauma research.

Firearm Behavioral Practices in U.S. Army Service Members and Veterans

CSTS Scientists, along with collaborators from Harvard University and University of South Florida, were awarded a two-year R01 grant from the Centers for Disease Control and Prevention (CDC) to study firearm behavioral practices in U.S. Army Service members and veterans and their impact on suicidal behaviors. The focus of this study is to develop a detailed understanding of Service members' firearms attitudes and behaviors and suicide risk, to determine whether there is a relationship between local gun laws and military suicide rates, to identify the principal reasons for keeping a gun and related suicide risk, and to establish whether there is a relationship between storage practices and personality characteristics. The study is a secondary analysis of datasets obtained from STARRS and STARRS-LS.

An in-depth analysis of the interactions among personality characteristics, reasons for gun ownership, gun use and storage practices, and local gun laws will identify potential medical, psychosocial, public policy, and command interventions to mitigate the relationship of firearm ownership to suicide. The broader impact of this study will enhance our understanding of risk and protective factors of firearm-related violence. This study examines factors related to suicide in a controlled setting among a population of men and women in the age range for which suicide is most prevalent in the general population, and provides opportunities for new insights that can assist the military in suicide prevention, which can be applied more generally to civilian society.

The preliminary results from this study suggest the importance of safe storage practices among gun owners and the need to develop interventions focused on ownership for safety and protection, storage practices, and suicide risk. In the year ahead, we intend to conduct longitudinal analyses of soldiers through their military careers and civilian life, to identify changes in behavioral risk factors, specifically related to changes in local gun laws, as these may be associated with suicide.

PTSD and Sleep Study

Sleep disturbances and PTSD are prevalent and often co-occur among Service members with combat experience. Whether sleep disruptions occur singly or with PTSD, they are associated with long-term negative consequences, including depression, hospitalizations, disability, and increased risk for cardiovascular disease. No treatment for sleep disturbances is universally effective, and co-occurring PTSD further complicates treatment decisions. The Center is leading this effort to identify factors that predict variation in sleep disorder treatment response. The research, done in collaboration with Harvard Medical School, utilizes data from Army STARRS, as well as interview and polysomnography data from the Sleep Disorders Center at the Walter Reed National Military Medical Center (WRNMMC). By including a large sample of Service members with sleep disturbances and an abundance of diverse predictors for Heterogeneity of Treatment Effects (HTE) analyses, the approach circumvents issues that have plagued prior studies. The team has now built an observational longitudinal dataset comprising >26,000 individuals diagnosed with and treated for an ICD9/10 sleep disorder and for whom pre- and post-treatment outcomes measures are available. HTE analyses conducted on this dataset will form the basis for clinical tools to improve treatment selection for individuals with PTSD-related and other sleep disturbances. This goal is more urgent given evidence that sleep disorders are among the long-term sequelae of COVID-19, and an effect of the social isolation, disruptions in daily routines, and other stressors that have occurred in response to the pandemic.

Reserve Components of the U.S. Armed Forces

The Citizen Soldiers of the Reserve Components (RC) of the U.S. Armed Forces play an important role in national defense, and a critical role assisting communities nationwide in response to the COVID-19 pandemic. Compared to the Active Component (AC), RC personnel experience unique stressors, both when the nation is at war and when the RC is called upon to activate for emergency

service, including during disasters and situations such as COVID-19, or providing support to civil authorities during times of unrest. CSTS is strongly committed to supporting the RC through the full range of their activities and providing understanding of their unique stressors and how they affect the health and performance of the RC. This commitment extends to addressing the needs not only of RC members, but also their families. CSTS fulfills this commitment to the RC through research to better understand their special needs, combined with consultation to RC units and leaders. The Center's goal is to provide information products that will enable RC decision-makers to use the best available knowledge in supporting RC members

National Guard Longitudinal Study

CSTS continued the Mental Health and Service Utilization among Reserve and National Guard Forces study in collaboration with Dr. Sandro Galea at Boston University. Using a representative national cohort of 2,003 National Guard and Reserve (NGR) Service members, this study specifically addresses the epidemiology and trajectory of mental health problems, deployment stress, health risk behaviors, and health care utilization over a four-year period. CSTS is actively analyzing this comprehensive dataset to address the health and resilience factors and experiences of the RC personnel. This past year, the Center examined the association of separating from military service with a variety of adversities. Those who left the military were more likely to report financial and health care access problems compared to those who stayed in the military. The association of transition status and having any adversity differed by gender. Among male Service members, there was no difference in reported adversity among those who left the military as compared with those who stayed in the military; whereas among female Service members, those who left the military were more likely to experience an adversity than those who stayed in the military. These results highlight that transition from military to civilian life may be a critical period for interventions to address the unique needs of the RC's citizen-soldiers and reduce their risk of adverse mental health outcomes.

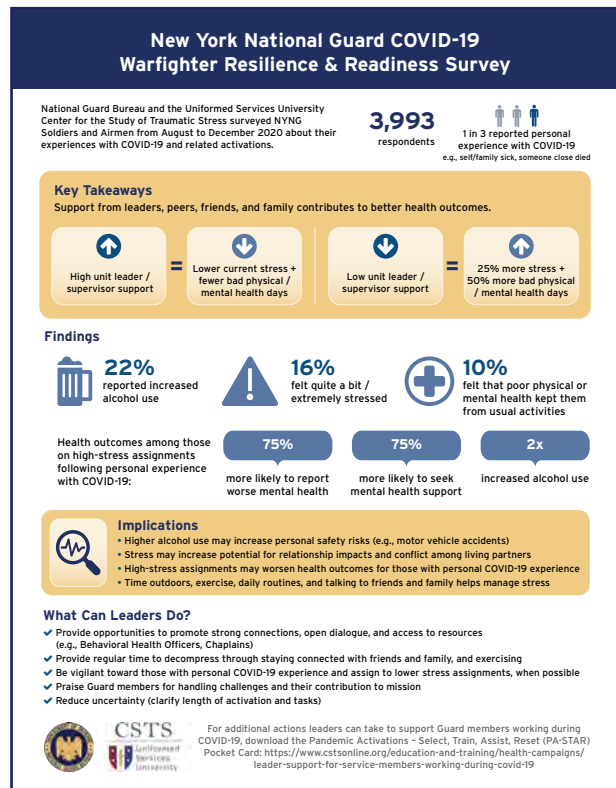
New York National Guard Warfighter Readiness and Resilience Assessment

The U.S. NG is a critical element of the nation's response to the COVID-19 pandemic. Identifying, monitoring, and understanding the NG's resilience and risk factors related to the COVID-19 pandemic are central to sustaining force readiness. Given the immediate need for information on force health and readiness, CSTS collaborated with the NYNG to develop a rapid public health surveillance assessment to identify stressors, resilience factors, and behavioral health responses among NG personnel in response to COVID-19. Based on this assessment, which was conducted with over 4,000 NYNG personnel from August to November 2020, Center Scientists began identifying pandemic-related stressors and experiences among Guard members who did and did not activate in response to the pandemic, as well as post-activation psychological and behavioral responses.

In 2021, Center Scientists produced a rapid report based on the 2020 COVID-19 assessment findings that provided NYNG leadership with actionable recommendations. Further, CSTS began specifically examining COVID-19-related work assignments that were associated with high stress activations and their relationship to post-activation PTSD, anxiety and depression symptoms, sleep difficulties, and increased substance use, including alcohol, tobacco, and caffeine/energy drink use. Study findings will inform work assignment recommendations for leadership to promote mental and behavioral health and readiness among Guard personnel during and following disaster response.

National Guard COVID-19 Operations Working with Human Remains

The National Guard (NG) activated in support of COVID-19, with jobs that included handling the remains of the dead. NG members were tasked with collecting and transporting human remains, working with hospitals, emergency services, and Offices of the Chief Medical Examiner. Importantly, most NG personnel are untrained and inexperienced in operations that involve human remains, and in addition,



performing these activities is extremely stressful and increases the risk for adverse psychological reactions during and after operations. To address these needs, CSTS continues to produce and distribute actionable recommendations and training materials to address pre-, during, and post-mortuary affairs operations. These materials are designed to reduce distress and increase resiliency in NG personnel and other populations without specialized training in working with the dead. In 2021, CSTS continued this work and provided the NG Directors of Psychological Health with a slide briefing. In addition, CSTS created the MA-STAR Pocket Card from the content in the NG slide briefing for use in real-time for leadership. Posters describing the MA-STAR Pocket Card have been presented at the 2021 Amygdala Conference and the 2021 WPA World Congress.



RESEARCH IN THE CHILD AND FAMILY PROGRAM



Dr. Cozza serving as a panelist at the Advanced Team Physician Course.

The Child and Family Program (CFP) conducts research to better understand the needs of all children and families affected by traumatic events, with special emphasis on the needs of U.S. military families. Although military children and families possess unique strengths, they can be affected by combat-related illness and injury, bereavement, child maltreatment, and family violence. In addition to CSTS-based work, the CFP maintains collaborative relationships with faculty and students within other departments at USU (e.g., doctoral dissertation graduate students, Department of Pediatrics researchers, Capstone program participants), other academic institutions, and community organizations. The products of CFP's research program inform scientists, clinicians, and the general public about the impact of stress and trauma on children and families through scientific publications, national and international presentations, and hardcopy/web-based resources. CFP's pioneering research is also translated into actionable and educational materials for military and government stakeholders, clinicians, and community leaders. In addition, CFP consults with military and government leadership, informs national media outlets, and conducts projects that promote a deeper

understanding of children in the U.S. and throughout the world.

Bereavement

The National Military Family Bereavement Study (NMFBS)

The NMFBS is the first large, systematic study to examine the impact of U.S. military Service member death on surviving family members. The goal of the study is to build upon existing bereavement research by determining how psychological, physical, and behavioral outcomes of bereavement are influenced by the experiences of military family members. The study includes archival data analyses, a longitudinal survey study, biosample (saliva) collections, and focus group qualitative data. The longitudinal study included approximately 850 adults and 120 children, and 981 participants provided saliva samples for analysis of biomarkers associated with bereavement. Findings have informed development of diagnostic criteria for a condition of impairing grief. As part of this groundbreaking work, CSTS partnered with colleagues at Columbia University, New York University, University of Pittsburgh, and UCSD to develop a proposal for criteria for prolonged grief disorder, a new diagnosis now included in the Diagnostic and Statistical Manual of Mental Disorders (DSM). A recent publication by CSTS Scientists reported a higher prevalence of depression, PTSD, and adjustment disorder post-death, and an increase in mental health care utilization in military widows. Current work is examining physical health outcomes and health care utilization in military widows and both mental and physical health outcomes in military bereaved children. Another publication highlighted the independent contributions of prolonged grief disorder, depression, and anxiety to cognitive failures in bereaved individuals, and a third publication described a codebook developed to analyze qualitative focus group data from family member survivors of military-related deaths. The NMFBS has identified needs of military family survivors, including the need to access health care services that can treat loss-related conditions.

Stepping Forward in Grief (SFG) Study

A virtual app that addresses grief adaptation may be a helpful resource for bereaved military family members. CFP formed a partnership with the Center for Prolonged Grief at Columbia University to adapt principles from Complicated Grief Therapy (CGT), found to be helpful in civilian populations, for a digital intervention aimed to assist with grief integration and decrease risk for long-term problems. The goal of SFG, a randomized controlled trial, was to compare the effectiveness of two digital programs (GriefSteps and WellnessSteps) in helping those bereaved by military service-related death. More than 550 participants were randomized to one of the two conditions and completed baseline, three-month, and six-month follow-up assessments about their current mental health and experience with the program. Participants were also grouped according to whether they initially had high or low grief scores. Results indicated that there were small, but statistically significant, improvements in grief and in functional impairment among those in the high grief group. In addition, a smaller proportion of GriefSteps participants, compared to WellnessSteps participants, met a threshold indicator for prolonged grief disorder (while adjusting for baseline grief) after use of the program. Both programs were rated favorably by participants. These results can be seen as proof of concept for a novel modality requiring little oversight or cost, which can markedly increase the ability to reach bereaved family members.

Study of Long-Term Outcomes of Terrorism-Related Grief

CFP partnered with Voices of September 11 (VOICES), a nonprofit organization that aids 9/11-affected families, and the Canadian Resource Centre for Victims of Crime (CRC), an organization supporting family members who were bereaved by the Air India Flight 182 bombing, to investigate long-term bereavement outcomes in family members (e.g., grief, traumatic symptoms, resilience, and posttraumatic growth) following a terrorism-related

death. More than 400 bereaved family members completed online questionnaires about their experiences. Two manuscripts have been published; the first identified three groups of bereaved family members that were differentiated according to patterns of depression, anxiety, and grief. The second manuscript examined the effect of receiving multiple notifications about the identification of fragmented remains of a family member. Results indicated that multiple notifications were differentially associated with posttraumatic stress, but not grief severity. Results from this publication were also described on the *International Society for Traumatic Stress Studies' (ISTSS) Trauma Blog* and were used to develop an interactive fact sheet for health care providers about death notification within health care facilities.

Bereavement Coping Study

The goal of this study was to determine whether military family survivors of suicide, accident, and combat deaths use similar or different coping strategies following bereavement and to examine associations between risk factors (i.e., hopelessness and reasons for living), specific coping strategies, and outcomes (i.e., grief, depression). Approximately 230 individuals participated. Analyses will identify: 1) associations between different coping strategies and grief, depression, and posttraumatic growth; and 2) changes between previously-collected baseline and current coping data. This information will identify actionable targets for intervention programs. A publication from this study used data from NMFBS to examine differential contributions of specific coping strategies and their relationships with cause of death in contributing to grief severity, depression, and posttraumatic growth. A related manuscript was also published that discussed the use of bereavement coping strategies in the context of the COVID-19 pandemic.

Disenfranchised Grief

Through its collaborations with Sons and Daughters in Touch (SDIT), an organization composed of children whose fathers died or were MIA in the Vietnam War, CFP noted the consistency with which this population felt their loss was unacknowledged



or rejected. This phenomenon is consistent with the concept of disenfranchised grief (DG), which refers to the experiences of bereaved persons whose grief was not or could not be openly acknowledged, publicly mourned, or socially supported by others. In response to and recognition of the importance of DG, particularly in the context of the COVID-19 pandemic, CFP is conducting research on DG, which includes developing a measure of DG. CFP is refining and will test this instrument in the SDIT population, as well as among individuals who suffered losses due to perinatal death, suicide, substance abuse, criminal activity, and HIV.

Child Maltreatment in U.S. Military Communities and Families

Another focus area of the CFP involves the identification of risk factors for child maltreatment in military families, in order to inform prevention and intervention strategies that strengthen military family health, well-being, and resilience. CFP's initial work focused on child neglect, the child maltreatment type most commonly reported in the U.S. and most frequently associated with child fatality. The aim of this initial work was to identify factors that increase risk of child neglect by examining characteristics of substantiated child neglect cases in families of U.S. Army Service members. Data were collected from records of 400 substantiated cases of child neglect from four high operational tempo Army installations in the continental U.S. Multiple manuscripts describing findings from this project have been published in *Military Medicine* and *Child Maltreatment*. Current work focuses on identifying patterns of co-occurring neglect incident characteristics and associated risk factors to advance understanding of the phenomenology of child neglect types.

CFP Scientists are currently participating in a congressionally-mandated study designed to advance understanding of risk and protective factors for all types of child maltreatment (i.e., neglect, physical abuse, sexual abuse, and emotional abuse) in military families from all service branches. Phase I of the project involved a case-control study of military families with dependent children to identify

the family, Service member, and military characteristics associated with heightened and diminished risk of substantiated child maltreatment incidents. In Phase II, survival analyses were conducted to investigate the contribution of Service member socio-demographic characteristics, family characteristics, military characteristics, and family life events to the timing of the first incident of substantiated child maltreatment. Results will identify characteristics of military family life that are associated with child maltreatment in order to inform the DoD's child maltreatment prevention efforts.



Combat Injured Families

CFP Scientists conducted three studies to examine the impact of combat injury on military families. These studies included families participating in 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), families of patients at WRNMMC and San Antonio Military Medical Center affected by combat injury, and families participating in Families OverComing Under Stress-Combat Injury (FOCUS-CI), a family-centered, strength-based, and evidence-informed preventive intervention. Ongoing data analyses focus on the impact of Service member combat injury on spouses' mental health outcomes. The aim of this work is to help us better understand the impact of combat injury on Service members and their fami-

lies and inform interventions that more effectively address their needs.

Family Violence

As the COVID-19 pandemic continued throughout 2021, we focused our *Research Review (RR)* on the pandemic's effects on children and families. *RR* consists of summaries of research on intimate partner violence and child maltreatment. Scientific and medical publications reviewed for summaries in *RR* tended to agree that reports of child abuse to police departments and child protective services decreased in 2020. The severity of maltreatment increased, parents used harsher parenting, and felt less close to their children. Particularly disturbing injuries to children were often due to abusive head trauma (AHT). Family risk factors for children hospitalized with AHT were intimate partner violence, substance abuse, an unknown number of adults living in the household, and prior police involvement. In addition to the cited risk factors for hospitalized children, there are family vulnerabilities that can be addressed in preventing AHT: socioeconomic deprivation, criminal behavior, mental health disorders, and financial concerns. We also noted that vulnerabilities were increased under lockdown measures.

We also featured summaries of literature on intimate partner violence during the pandemic. We reported that parents who lost their jobs were more likely to physically and psychologically maltreat their children and to be depressed. A risk factor resulting from job loss that puts significant stress on families is financial instability: how long could they remain at their address and maintain their standard of living? However, in the face of such challenges, positive cognitive reframing of challenges can make them more manageable through reappraising and redefining stressors. Other significant individual stressors in today's society are isolation and loneliness. With mandatory lockdowns of whole sectors of societies, both in the U.S. and internationally, isolation and loneliness have increased, particularly among the vulnerable. Isolation also can increase other risk factors for child abuse and intimate partner violence as well as influence health: substance abuse, smoking, self-medication, and overeating. A challenge for

mental health and social service providers following the lifting of lockdowns is helping people consider how to address persistent problems that they encountered during and after lockdown.

In addition to *RR*, we also published *Joining Forces Joining Families (JFJF)*, in which we interviewed a subject matter expert on the treatment of perpetrators of intimate partner violence. A key focus of this issue of *JFJF* was the importance of trauma-informed care in the treatment of victims and perpetrators of intimate partner violence.

We continued to provide the Army Family Advocacy Program (FAP) with quarterly statistical data monitoring of installation-level FAP report changes throughout 2021. We also began to address the prevalence of problematic juvenile sexual behavior on Army installations by reporting monthly statistics. This is a new area of inquiry that poses many challenges to Army families, but prevention efforts are ongoing across the Army.

We also participated in the annual Army Family Violence Fatality Review Board and drafted a report that summarized the characteristics of child abuse and intimate partner violence-related fatalities, including the demographics of victims and perpetrators, risk factors for fatal events, and comparisons of Army fatality cases with reports from international literature on fatalities.

RESEARCH IN NEUROSCIENCE AND NEUROBIOLOGY

Laboratory Research in Neuroscience and Neurobiology

Genetics and Biomarkers

Although we have faced significant challenges during the COVID-19 pandemic, the laboratory has continued to conduct biomarker research. CSTS Scientists hypothesized that certain gene variants might contribute to susceptibility to smoking in individuals with PTSD and that these genes might be more frequently present in patients with PTSD in comparison to healthy subjects. The laboratory used polymerase chain reaction (PCR) amplification genotyping and the PTSD Checklist (PCL) to examine

the association of brain-derived neurotrophic factor (BDNF) and smoking behavior in Service members to identify potential biomarkers. We found that total PCL scores were significantly higher in daily cigarette smokers compared to non-daily smokers, whereas total PCL scores were marginally higher in daily cigar smokers compared to non-daily cigar smokers. In non-PTSD controls, FKBP5, but not p11, COMT, and BDNF, was positively associated with smoking. In those with PTSD, BDNF, but not FKBP5, COMT, and P11, was associated with smoking. Smoking amount was negatively correlated with gender and age, but positively correlated with the total PCL score. These data indicated that smoking behavior was related to higher PCL scores in both those with and without PTSD. To the best of our knowledge, this is the first report showing that FKBP5 and BDNF were associated with smoking behavior in non-PTSD controls and those with PTSD, respectively. This research may facilitate better understanding of the molecular mechanisms involved in the gene-environment (G x E) interaction to develop evidence-based treatments for smokers.

Chronobiology, Light, and Sleep Research

The overarching goal of the Chronobiology, Light, and Sleep lab research program is to further understand sleep, circadian rhythms, and light in order to maximize human health and well-being.

From a basic science perspective, our research focuses on the neural mechanisms underlying the modulation of photic sensitivity for the biological effects of light, including circadian resetting, neuroendocrine regulation, alerting effects, and mood enhancement. This year, the lab was set up and Institutional Review Board approval was put in place to enable studies that will help us to better understand the acute alerting properties of light. An upcoming controlled laboratory study will provide insight into the photoreceptor physiology underlying this acute response to light while also serving to inform direct translational efforts wherein light treatment will be used to increase alertness in the field. Data collection for that work is slated to begin in the coming months.

From a translational perspective, our studies

examine how the basic science of this primitive sensory system can guide the rational development of clinical therapies and architectural lighting strategies. Due to the pandemic, in 2020-2021, our team made a strategic pivot from plans to test novel lighting countermeasures in shiftworkers in a hospital setting over to those on a high-security watch-floor. In that study, we examined the efficacy of two distinct spectrally-engineered lighting technologies for increasing alertness, performance, and/or sleep in Service members who necessarily work rotating nightshift schedules. The aim of one lighting condition was to optimize the physiological effects of light in general, whereas the other was intended to focus the effects on only one physiological response without influencing others. Data collection followed by preliminary findings have been reported, and further analyses are ongoing.

In order to successfully transition new evidence-based lighting applications to domestic and workplace settings, there is a need for a well-designed educational component that will ultimately serve to increase investment and facilitate adoption of interventions that target sleep, circadian health, and other physiological effects of light. Thus, the development of such a program has become an emerging priority for our team. To that end, we have continued to study and evolve our sleep-focused education program, Circadian, Light, and Sleep Skills (CLASS), which was tailored specifically for shipboard Service members (CLASS-SM). The efficacy of the program was studied in crew members on three U.S. Navy ships during an underway (at sea) period of 2-4 months. Longitudinal data demonstrated that participation in CLASS-SM, on its own, resulted in increased sleep quality, which also led to better mental health outcomes. More detailed findings are included in associated manuscripts that are currently under review, and initial plans for transitioning the program are being made in collaboration with the Consortium for Health and Military Performance (CHAMP).

Beyond those research efforts, our lab was involved in a variety of related outreach initiatives. For example, we joined the Student Wellness Advisory Board and the Sleep Medicine Fellowship Program

at WRNMMC to coordinate and produce a series of presentations and materials meant to educate medical students on why and how they should prioritize their own sleep health. In separate work, a commentary piece was written with Dr. Rachel Lee, who leads the vaccination program at WRNMMC. In it, we describe how sleep, circadian health, and melatonin might be used to boost the immune system and maximize vaccination efficacy in the context of COVID-19.

In total, five peer-reviewed publications have come out from our group this year, including original research articles on studies of Service members and hospital shiftworkers as well as review articles on the physiological effects of light. Additionally, three grant proposals have been developed and submitted in collaboration with colleagues at various institutions, in an effort to obtain support for future studies of light, circadian rhythms, melatonin, sleep, and other associated health issues.

Clinical Research in Neuroscience and Neurobiology

Riluzole Augmentation Treatment for Complicated Combat-Related PTSD

The Center continued analysis of imaging data from our recently published multi-site clinical trial testing the efficacy of riluzole for treatment of combat-related PTSD. The study demonstrated that veterans who experienced continued PTSD symptoms despite treatment with evidence-based medications for PTSD, showed greater improvement in hyperarousal symptoms, such as exaggerated startle responses and hypervigilance, when treated with riluzole as compared to placebo. CSTS researchers collected proton magnetic resonance spectroscopy (1H-MRS) of the amygdala and anterior cingulate cortex before and after treatment as a potential biomarker of illness and treatment response. CSTS Scientists, in collaboration with researchers at Brigham and Women's Hospital, have identified discernible changes in brain metabolites in the areas of interest, which were associated with improvement in PTSD symptoms. These findings are under preparation for publication. This study was funded by the U.S. Army Military and Operational Medical Readiness Pro-

gram and enrolled participants at WRNMMC and the Syracuse Veterans Affairs Medical Center from 2014 to 2017. Riluzole alters activity of glutamate, the primary excitatory neurotransmitter in the brain, and is currently FDA-approved for treatment of amyotrophic lateral sclerosis.

Enhancing Fear Extinction via Angiotensin Type 1 Receptor Inhibition: A Randomized Controlled Trial in PTSD

CSTS recently collaborated with UCSD in a multi-site clinical trial testing the efficacy of losartan for treatment of PTSD. Losartan is an angiotensin receptor blocker, currently FDA-approved for treatment of high blood pressure. This trial compared treatment with losartan to placebo as mono-therapy for over 10 weeks of PTSD treatment. The final results of the study were published in *Biological Psychiatry*, with losartan failing to achieve treatment results better than placebo and no discernible influence of a specific angiotensin converting enzyme (ACE) gene as a biomarker of treatment response. Although the study failed to support use of a new medication for treatment of PTSD, it did provide valuable evidence.

Nightmare Deconstruction and Reprocessing for Treatment of PTSD-related Nightmares

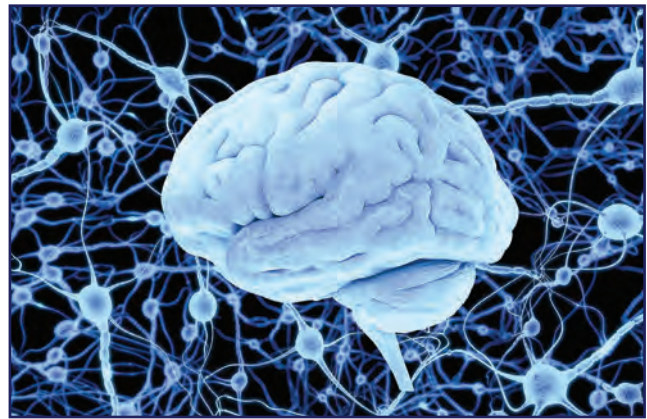
Nightmares and insomnia are among the most common and debilitating re-experiencing symptoms of PTSD, and for many patients they are the most resistant to evidence-based treatment. Sleep disturbance and associated fatigue represent a threat to readiness. CSTS is conducting a pilot trial of Nightmare Deconstruction and Reprocessing (NDR), an exposure-based psychotherapy for trauma-related nightmares and insomnia. NDR is an adaptation of the Hill cognitive-experiential model for working with dreams in psychotherapy. Participants work with therapists to recall their most distressing nightmare images and their associated thoughts and feelings in order to facilitate reconsolidation of trauma memories. CSTS is partnering with WRNMMC and Naval Medical Center San Diego to test this intervention in military Service members and veterans. In addition to assessing nightmare and insomnia

severity, suicidality, and PTSD symptoms, the study is testing several potential biomarkers of treatment response. The study team is analyzing genetic and inflammatory biomarkers at multiple points in treatment as potential indicators of treatment response, and also collecting continuous physiologic indicators of stress, such as heart rate variability and skin conductance using wearable technology. Ultimately, findings from this study will be used to design a full-scale randomized, controlled trial to demonstrate efficacy and validate biomarkers. The study has been enrolling participants since 2019, with expected continued enrollment through 2022. COVID-19 presented unique challenges to recruitment and treatment of study participants, but the study has successfully transitioned to primarily virtual therapy sessions and assessments.

The Veterans Affairs (VA) National PTSD Brain Bank

In 2014, a consortium led by the Department of Veterans Affairs National Center for PTSD and co-founded by CSTS Scientists established the first human tissue biorepository—or “Brain Bank”—dedicated to examining the impact of trauma and stress on human body tissues, with the objectives of identifying biomarkers of susceptibility and resilience to trauma, and assisting in targeting new treatments. The Brain Bank collects, processes, and stores clinical and biological information, which can then be distributed to investigators nationwide, and afford researchers the opportunity to examine the molecular, morphological, and biochemical effects of traumatic stress on the brain and generate proposed mechanisms of PTSD, develop pharmacological interventions, and study biomarkers and endophenotypes.

Since its inception, the Brain Bank has acquired tissue from existing collections and also enrolled donors through collaborating institutions. Living persons can enroll to serve as future tissue donors and, furthermore, provide comprehensive longitudinal assessment data via clinical interview from the time of enrollment until the time of their death, when their tissue is donated to the Brain Bank. In 2021, the Brain Bank obtained 36 tissue donations and enrolled 46 additional future donors, and, to



date, the Brain Bank has obtained 320 tissue donations and enrolled 198 additional future donors.

During 2021, CSTS Scientists continued to serve on the Brain Bank’s Steering Committee, Tissue Access Committee, and Diagnostic Assessment Core, and have collaborated with other Brain Bank investigators on several manuscripts. CSTS has also been prepared to establish a recruitment site at the Armed Forces Retirement Home in Washington, DC. While safety precautions related to COVID-19 have precluded large gatherings at this location and restricted visitors, including those who might provide information on research, when conditions permit, CSTS will be poised to help identify and assist veterans at this site who are interested in supporting the Brain Bank by becoming future tissue donors and providing their physical and mental health data.

RESEARCH ON DISASTERS AND TERRORISM

Florida Department of Health Response to Multiple Hurricanes

CSTS Scientists continued to examine psychological and behavioral responses following natural disasters, including psychological distress, posttraumatic disorders, health risk behaviors, and functional/occupational impairment. In particular, during the past year, the Center examined predictive factors that influence recovery and resilience following disaster exposure, which can be targeted for preventive interventions in first responders who are exposed to multiple disasters. This work is particularly important globally, as the world has experienced a

wide range of disasters during 2021, including the COVID-19 pandemic, the devastation and destruction caused by a 7.2 magnitude earthquake in Haiti, multiple tornadoes in the southern and midwestern United States, flooding in the U.S., Asia, and Europe, wildfires and extreme heat in the western United States, freezing and disruption to the power grid in Texas, and hurricane and cyclone activity globally.

During 2021, Center Scientists identified factors that play a role in recovery from multiple hurricane exposure by examining the behavioral responses and time to recovery in Florida Department of Health workers who were both first responders to, and were personally affected by, an unprecedented series of



hurricanes that occurred in 2004 and 2005. CSTS examined pre-hurricane individual and interpersonal factors that influenced time to recovery following the 2005 hurricanes. Importantly, less social support from respondents' spouses, friends, and family, more work presenteeism (i.e., reduction in work performance and productivity at work), higher levels of personal injury/damage as a result of the hurricanes, and higher emotional response during the hurricanes were associated with a longer time to recovery following the hurricanes. This research suggests the importance of social support, work performance, and peri-traumatic factors, such as initial emotional response and extent of hurricane injury/damage, in promoting resilience. Action-oriented strategies include community-level interventions and programs focused on enhancing social and workplace support, and attention to peri-traumatic responses.



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Washington Navy Yard Shooting Study

The Center collected qualitative data at the Washington Navy Yard as part of a multi-site collaborative study with the University of California, Los Angeles (UCLA) that was funded by the National Institute of Justice (NIJ). This study data will improve the understanding of risk and protective factors impacting community recovery following response to mass violence. The first phase of the study involved assessments following five school mass shootings. The second phase focused on six community violence events, including the Washington Navy Yard workplace mass shooting in 2013. This collaboration benefited from a long-standing relationship with Naval Sea Systems Command (NAVSEA) to examine persistent social and occupational challenges for personnel. The data have been analyzed and a report provided to the NIJ that will guide policy for the federal government's future response and recovery efforts following incidents of mass violence. CSTS published a manuscript that captured critical lessons learned in methodology for conducting research on behavioral health impacts of mass violence in military communities that will serve as a seminal publication to better inform the field in support of future efforts.



Dr. Morganstein speaking at a conference.

Education and Training

An essential element of the Center's work is training and education. Center Scientists provide education and training to USU medical students committed to service in the nation's Air Force, Navy, Army, and Public Health Service. CSTS educates health care personnel and community leaders at the local, state, and federal levels, as well as in national, global, and private sector settings. The Center also sponsors conferences, symposia, seminars, and forums on numerous areas, including disasters, terrorism, war, and other aspects of trauma. CSTS advances military and disaster psychiatry through presentations, training, outreach, and participation in conferences, collaborations, and workshops throughout the U.S. and global community. The Center also expands knowledge and provides education through public health efforts and interventions before, during, and after a broad range of disaster events.

One of the Center's instrumental public health education tools is development and dissemination of educational materials to inform stakeholders, including: health care personnel, families, community and organizational leaders, first responders, public health emergency workers, teaching professionals, and policy makers. For more than two decades, CSTS has created just-in-time, customized, highly actionable, and easy-to-read educational fact sheets

in order to aid national and global stakeholders in mitigating adverse effects of disasters through optimized preparedness, response, and recovery efforts.

A primary focus at CSTS has been the COVID-19 pandemic. COVID-19-related efforts have included providing COVID-19 educational resources to partners throughout the DoD, other Federal agencies, state and local agencies, professional associations, and international partners.

DISASTER RESPONSE AND PUBLIC EDUCATION

Since its inception in 1987, the Center has provided disaster preparedness and response education and consultation in a variety of forms and situations. CSTS personnel have provided on-the-ground education and consultation in response to extreme national and global disasters, as well as immediate and long-term online, video, and telephonic support to assist response and recovery efforts following a wide range of disaster events, which have impacted various organizations and communities. Current and former CSTS personnel have been sought out to provide guidance on disaster preparedness, response, and recovery efforts because of the experience and subject-matter expertise obtained while working at the Center. The Center's Deputy Director also serves as Chair of the Disaster Committee for the American Psychiatric Association, the world's largest professional organizing body of psychiatrists.

Throughout 2021, the Center provided consultation and education in response to the COVID-19 pandemic as well as numerous converging disasters. Center Scientists were asked to serve as ongoing subject-matter experts advising on psychological and behavioral health impacts for National Guard and other personnel who responded to the riots at the Capitol Building in Washington, DC. Guard members from nearly a dozen states and personnel from other federal agencies were mobilized during and after the riots to protect the nation's capital and



Dr. Ursano speaking at a conference.

community members from injury and further attacks. The Center provided months of ongoing guidance on policy and practices to protect the health of responders and community members. The Deputy Director was sought out following the deadly Surfside Condominium collapse in Surfside, FL, to serve as a consultant for the health consortium established by the Office of the Mayor to provide mental health care throughout the community. This partnership of public and private entities delivered a range of services to community members and their families, as well as responders and emergency workers.

The Center also supported response efforts to a range of climate-related disasters, including the Boulder City wildfires and the extreme tornadoes that devastated numerous states across the Midwest. In response to these events, the Center developed just-in-time education fact sheets and disseminated them to stakeholders involved in disaster response, including the National Association of State Mental Health Program Directors, the Office of the Assistant Secretary for Preparedness and Response, as well as national medical organizations providing local response support, such as the American Psychiatric Association. The Center also developed a resource page and worked with partner organizations to support military and civilian communities in the wake of Hurricane Ida, which caused over \$75 billion in damages and killed nearly a hundred people, making it the fourth costliest hurricane in United States history and the deadliest since Hurricane Katrina.

In the summer of 2021, the Center worked with military medical partners around the world to support communities impacted by the evacuation of Afghanistan citizens and military troops. The Center provided resources and developed collaborations between response stakeholders in the DoD as well as the U.S. Department of Health and Human Services to enhance synergy of effort and dissemination of critical, actionable resources to support displaced community members, local residents, responders, health care workers, and community leaders. The Center also shared resources with partners within the 5-Eyes Mental Health Research International Collaboration (MHRIC) to provide resources and public education about the range of impacts on

active Service members as well as veterans who were involved in the war in Afghanistan.

Throughout 2021, the Center continued its leadership role in global disaster mental health response to COVID-19 in support of numerous stakeholders at the local, state, federal, national, and international levels. CSTS rapidly developed numerous actionable fact sheets that were timely, topical, and easy-to-read, and were widely disseminated to critical partners who needed resources addressing current and emerging challenges at various stages throughout the pandemic. CSTS members provided education and training to numerous national health care organizations, professional organizations, and federal interagency and global partners on the unique psychological and behavioral effects of a protracted and evolving pandemic on individual and community health. Center Scientists delivered nearly 650 presentations in support of a broad range of stakeholders involved in pandemic response, and published nearly 20 manuscripts to better inform the field on addressing mental health challenges and enhancing resilience for Service members, health care workers, families, patients, and community leaders.

The following are additional examples of continued Center disaster response and education activities:

- Center Scientists continue to provide educational support to the USU Master in Public Health program by delivering educational seminars on domestic and international disaster behavioral health.
- The Deputy Director again delivered a course in disaster behavior health for the Disaster Fellowship at George Washington University. Attendees were primarily Emergency Physicians, and this course provided a foundation for understanding the psychological and behavioral responses of disaster survivors in crisis.
- An Associate Director delivered ongoing training at George Washington University (GWU) as part of a course in Leadership in Crisis & Catastrophe in GWU's Crisis, Emergency, & Risk Management Program.
- Again, a Center Scientist was invited to provide disaster and preventive psychiatry training for the

fourth-year psychiatry residents at the University of Maryland/Sheppard Pratt Psychiatry Residency Program.



NEUROSCIENCE AND BEHAVIOR MODULE FOR PRE-CLERKSHIP USU MEDICAL STUDENTS

The Neuroscience & Behavior Module is an 8-week, annual, required multidisciplinary course for the first year USU School of Medicine (SoM) students. As in past years, the module teaches medical students the principles of neuroscience through integrated content across a range of disciplines. With a focus on effective management of a variety of neurologic and psychiatric conditions, students learn to recognize, describe, and diagnose common neuroscience-related medical conditions. Through simulated patient experiences, effective, safe, and patient-centered clinical skills, including the performance of neurologic and mental status examinations, are developed and practiced. With the goal of fostering a robust and well-rounded education for future military medical officers, topics related to military medicine, medical history, and health systems science are integrated throughout the module.

In 2021, due to COVID-19, the University continues to provide distance learning, adding some in-person classes and simulations. Importantly, the module continues to be highly regarded by students and faculty alike as one of the best modules in the pre-clerkship curriculum. In 2019, the module was recognized for pre-recording all lectures into a higher-quality format that was more accessible to

students than recording live lectures. In preparation for 2020 and 2021, the module continued to enhance online lecture delivery by improving and re-recording 52/137 (37% of) video lectures. In collaboration with the Dean's Office, the module also embedded questions (checks for understanding) into 85/137 (62%) of video content using Panopto's built-in quiz feature. Module instructors continue in the expanded flipped classroom approach and continue to contain 6 weekly sessions. These flipped classrooms required students to attend a live session to answer questions based on clinical cases that wove together the lecture content they independently watched from that week. A weekly series of operational vignettes continue to be incorporated. These vignettes, collected from USU graduates and faculty, were intended to demonstrate the operational importance of the material the students were learning each week. Lastly, based on consultation with the Assessment Sub-Committee and the Associate Dean for Assessment, every module exam question continues to be carefully blueprinted, down to the objective.

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

CSTS Scientists offer training in Combat and Operational Stress Control (COSC) as a core component in military medical education. In line with USU's mission to prepare uniformed health professionals to support the readiness of the U.S. Armed Forces, CSTS Scientists engaged in curriculum preparation, faculty development, and direct teaching as part of the annual medical field training exercise, OPERATION BUSHMASTER. This training exercise challenged senior medical and graduate nursing students to operate in forward medical units in a complex battlefield simulation over four days. Students evaluated and treated a continuous stream of battlefield casualties and non-battle injuries, and conducted public health and health outreach activities while on a simulated combat deployment. Evaluation and treatment of combat and operational stress reactions were core skills taught and evaluated

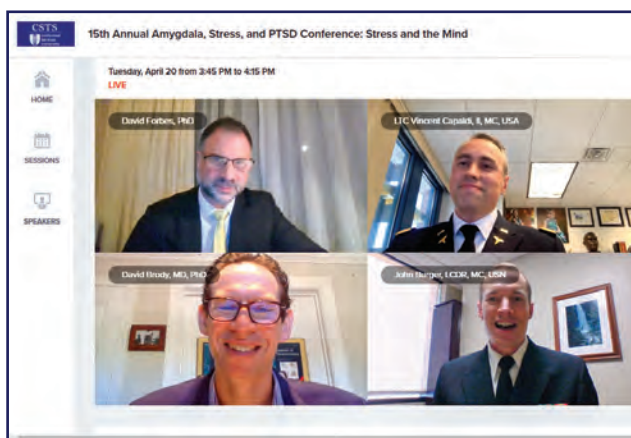
as part of the exercise. CSTS faculty collaborate with the psychiatry residency programs of the National Capital Consortium and the San Antonio Uniformed Services Health Education Consortium to provide an opportunity for resident physicians to develop their teaching skills and understanding of COSC as part of their core military-unique curriculum.

The COVID-19 pandemic brought unique challenges to BUSHMASTER, and CSTS Scientists adapted teaching methods to achieve comparable learning objectives with smaller, safer groups of students in the field. With the advent of widespread vaccination among faculty and staff, we have since been able to return to full-scale exercise operations and teaching.

EDUCATIONAL CONFERENCES

Amygdala, Stress, and PTSD Conference

In 2021, the 15th Annual Amygdala Conference: Stress and the Mind, sponsored by CSTS in collaboration with the USU Department of Psychiatry, USU Neuroscience Program, USU Department of Family Medicine, and the WRNMMC Department of Psychiatry, transitioned to a virtual format. The Conference featured several world-renowned scientists, including Eric J. Nestler, MD, PhD (Icahn School of Medicine at Mount Sinai), Kay M. Tye, PhD (Salk Institute), David Forbes, PhD (Phoenix Australia, Centre for Posttraumatic Mental Health), David Brody, MD, PhD (Uniformed Services University), and Vincent F. Capaldi, II, MD (Walter Reed Army Institute of Research).



TRAINING TO SUPPORT RESEARCH

The Center trains and educates research support staff, such as Research Assistants (RAs). RAs support research at CSTS, and have the opportunity to learn by working with CSTS Scientists. The RAs conduct literature searches and participate in data collection, data entry and quality control, and in addition, develop tables and graphic representations of study findings. RAs also write summary reports of meetings. RAs acquire valuable research skills at CSTS, including poster development for research presentations, and presenting research findings to professionals as well as the general public. RAs are offered professional development opportunities, including attending, presenting posters, and representing CSTS at professional conferences, and assisting with manuscript preparation for publication in peer-reviewed scientific journals. RAs further their education by pursuing advanced degrees. Center RAs have furthered their education at institutions including: Yale, Notre Dame, Johns Hopkins, Duke, Columbia, Georgetown, London School of Hygiene and Tropical Medicine, University of Maryland, George Washington University, Catholic University, University of Nebraska–Lincoln and USU. Opportunities that RAs have pursued following their experience at CSTS have included:

- Ph.D. programs in psychology and related fields
- Medical school
- Law school
- Master's degree programs in psychology, counseling, public health, and social work
- Training positions at the NIMH and other institutes at the NIH
- Careers with the FBI

DISSEMINATION AND IMPLEMENTATION OF HEALTH AND RESEARCH KNOWLEDGE

Fact Sheets and Infographics

Fact sheets are a highly regarded and long-standing communication tool of CSTS. They are easy to understand, topic-focused, and actionable education resources developed using expert knowledge to communicate essential behavioral health content

on difficult and/or crisis-related issues. Fact sheets and infographics address the needs of a broad range of stakeholders, including health care providers, first responders and emergency workers, family members, community leaders, and policy makers. CSTS fact sheets, which are developed, updated, and maintained in an online repository, address a wide range of issues pertaining to preparedness and response for disasters, such as mass violence, natural disasters, and pandemics; risk and crisis communication; elements of crisis leadership; family health behaviors; and health risk education. CSTS fact sheets and infographics provide readers with resources tailored to the unique aspects of disaster events and disaster community. The Center develops 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.

In 2021, the Center developed and disseminated 10 unique fact sheets and infographics addressing mental health aspects of the pandemic and its impact on health care workers, families and patients, and community and military leaders. These fact sheets addressed unique issues, including reintegration and recovery of health care workers after COVID-19 operations, managing grief and stress during the holiday season, and support from supervisors in assisting workers returning to the workplace. These fact sheets continued to serve as essential education resources to support global mental health response to COVID-19 for the United Nations, NATO ally nations, National Academies of Sciences, Engineering, and Medicine, American Medical Association, National Association of State Mental Health Program Directors, Assistant Secretary for Preparedness and Response, Centers for Disease Control and Prevention, American Psychiatric Association, American College of Physicians, and numerous others.



Website

The CSTS website is a primary tool that is used to further the goal of disseminating relevant and timely information to a wide range of stakeholders (www.CSTSONline.org). Throughout the year, CSTS personnel continually added content and made content more accessible. Material available on the website includes summaries

of current research activities, publication citations, newsletters, conference reports, and a searchable repository of CSTS disaster mental health education fact sheets. The website includes a “What’s New” section to highlight recent disaster education materials, research initiatives, publications, conference summaries, and announcements of upcoming events.

In 2021, the CSTS website had 40,720 users from 167 countries around the world, with 29,330 (72%) of users from the U.S. On average, 112 users visited the site daily throughout 2021. The top 5 countries each had over 650 users visit in 2021. Desktop viewership remained the most used viewing style on the website, at 32,396 users. Mobile devices were used to view the website by 7,697 users and tablets had 455 users.

The most viewed section in 2021, other than the main page, was the COVID-19 Pandemic Response Resources section, which was also the most popular page in 2020 and beat the main page in views for the first time that year. That page had a total of 7,774 users in 2021, with an average length time on the page being 3 minutes and 25 seconds.

Social Media

In 2021, the Center continued to grow its online presence through the use of social media. Social media resources allow for the timely dissemination of relevant content to our partners and the public. CSTS Twitter followers increased by 8% and CSTS Facebook followers increased by 10% in the past year. The Center encourages people to visit and follow CSTS postings via Twitter and Facebook to stay up-to-date on new CSTS activities and publications. “Like” CSTS on Facebook at Center for the Study of Traumatic Stress and follow CSTS on Twitter @CSTS_USU.

Consultation

Consultation has been and remains a core function of the Center. It is a primary mechanism through which CSTS staff share research findings and apply the deep and broad experience of CSTS staff and leadership. These consultations serve as a valuable mechanism to ensure that CSTS staff are aware of, and responsive to, those who face challenges and opportunities related to trauma of many types. Since its inception, the Center has developed and maintained partnerships with, and provides consultation to, many agencies and organizations throughout the DoD and other federal agencies, as well as with state, local, and national agencies, professional associations, and international organizations. The Center has established many long-standing organizational relationships and is continuously increasing its consultative activities with new partners. The following are examples and updates of some long-standing CSTS consultations as well as some new activities.

COVID-19 has remained a critical source of trauma and stress in every part of the world, and a central focus of CSTS' work. The work has been facilitated by the many long-standing relationships CSTS has developed both inside the U.S. and internationally. These consultations have facilitated rapid, high quality, and creative contributions in the wake of the pandemic. CSTS continues to provide a resource website with customized, just-in-time, public mental health education fact sheets to help families, health care personnel, military and community leaders, and businesses plan for, and respond to, the COVID-19 global outbreak. These resources have been shared with national, federal, and international partners and are widely disseminated throughout CSTS networks. Examples of the key national and international entities with which CSTS work are described below.

U.S. GOVERNMENT

CSTS leadership is frequently asked to consult with a variety of federal entities. These consultations

continued in 2021. As a reflection of the credibility and reputation of CSTS personnel, CSTS leadership was invited to provide novel consultation. For example, following the January 6, 2021 violence at the U.S. Capitol, at the request of the Attending Physician of the U.S. Congress, CSTS leaders conducted a consultation with the Democratic Spouses Forum to discuss normal responses to stress and trauma.

DEPARTMENT OF DEFENSE

CSTS continues to provide leadership and consultation within the DoD. Materials developed by CSTS are heavily utilized by many components of the DoD and those it serves. For example, military families are a core focus for CSTS and those efforts are discussed in detail in other parts of this report.

The Center has a long partnership with the Joint Mortuary Affairs Center and broader mortuary affairs community, providing ongoing education and training post-deployment to mitigate adverse effects of exposure to human remains for military personnel. Those efforts continued in full force during 2021. A CSTS Scientist gave a presentation titled "Stress and resiliency in U.S. Army mortuary affairs operations: War fighting and humanitarian missions" to the Central Joint Mortuary Affairs Board (CJMAB). The presentation was at the Board's request for information comparing mortuary affairs war fighting/OCONUS operations and Humanitarian/Defense Support of Civil Authorities/CONUS operations. The presentation was delivered virtually and there were approximately 50 individuals (military and civilians) in attendance.

That same Scientist participated in a consultation discussing just-in-time training in handling human remains for inexperienced personnel. Participants included individuals from the Defense Support of Civil Authorities (DSCA), ARNORTH, NORAD, NGB, U.S. Marine Corps (USMC), and Joint Mortuary Affairs Center (JMAC).

In addition, consultation, guidance, and recommendations for mortuary affairs operations in war

fighting, defense support of civil authorities, and humanitarian missions was provided. The results will be included in an upcoming publication titled “NORAD and USNORTHCOM Instruction XX-XX, Operational Mortuary Affairs Support in the Homeland.”

The CSTS Deputy Director was sought out by the Defense Threat Reduction Agency as a DoD subject matter expert in response to a request from the Indonesian Army to present at their conference “Lessons Learned from COVID-19” on the issue of sustaining health care workers and military personnel during COVID-19. He was the sole representative from DoD at the conference that brought together more than 600 military leaders in the Indonesian Army, including the current and former Surgeons General and numerous other flag officers. The presentation resulted in nearly 50 questions from audience members that led to more than an hour of discussion and engagement on matters of psychological health and military readiness during global disasters.

Center Scientists were sought out by the Joint Theatre System (JTS), a multi-national consortium led by the United States. The JTS works to ensure the safe and timely care and movement of military personnel requiring aerovacuation for medical care, and educate JTS personnel from over a dozen nations on the psychological and behavioral effects of trauma in order to enhance care of military personnel during evacuations. This consultation led to the JTS development of a *Behavioral Health Clinical Practice Guideline* to optimize health care for military personnel as well as those providing care for individuals experiencing mental health concerns.

Another CSTS Scientist provided consultation in the Military Operational Research Program PTSD treatment portfolio virtual Interim Progress review.

The Center Director was asked to serve as a member of a distinguished work group to revise the *VA/DoD Clinical Practice Guideline on the Management of Acute Stress Disorder and Posttraumatic Stress Disorder*. This guideline document is the most contemporary, seminal global document guiding the care of trauma-related disorders for both military and civilian personnel.

United States Agency for International Development (USAID)

In 2021, CSTS leadership was asked to consult with leaders of the U.S. Agency for International Development (USAID) to explore a variety of interests regarding their need to optimize crisis services to USAID workers in the field. USAID has staff located throughout the world, often in austere and distant locations. In addition to their usual activities, USAID has Disaster Assistance Response Teams (DART) that respond to a wide variety of international disasters (e.g., earthquakes). Providing services in the event of acute and ongoing stressors (e.g., death of a colleague) presents numerous policy and practical challenges. Several senior USAID leaders, including U.S. Forest Service and State Department Medical representatives, participate in this ongoing consultation. This consultation is in its early stages and is expected to continue and expand going forward.

United States Coast Guard (USCG)

A former CSTS Scientist is now a USPHS psychiatrist serving in the USCG. Her transition has provided the opportunity for regular, diverse, and sometimes specialized consultation. As an example of the importance of this relationship, CSTS was contacted regarding a particularly complex mental health issue aboard a vessel. Center Scientists provided education, consultation, and resources to senior Coast Guard behavioral health leaders to optimize response, enhance readiness, and promote recovery in support of homeland security.

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

CSTS maintained a strong and growing partnership with NCDMPH. The major collaboration between these two USU Centers, completed in 2020, was the second edition of the *Curriculum Recommendations for Disaster Health Professionals: Disaster Behavioral Health*, which remains a seminal resource actively utilized as the de facto guidance on disaster behavioral health education curriculum throughout the global community. A Center Scientist served as an Associate Editor for the journal *Disaster Medicine and Public Health Preparedness*, a publication affiliated with NCDMPH.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES (DHHS)

The national leadership role of CSTS in disaster behavioral health response and the impact of psychosocial factors on workers in extreme events is made possible by our links to federal entities outside of the DoD. Several of these entities reside within DHHS. DHHS disaster and trauma responsibilities overlap with and are a complement to the activities of CSTS. The primary DHHS partner of CSTS is the Assistant Secretary for Preparedness and Response (ASPR).

Assistant Secretary for Preparedness and Response (ASPR)

During 2021, CSTS continued and expanded its collaboration with ASPR staff and leadership. This long-standing relationship allows the Center to enhance awareness of existing and emerging federal issues and initiatives and to provide evidence-based consultation and information sharing of issues related to disasters and emergencies.

The continuing challenges of COVID-19 throughout the year have intensified these relationships and have included partners from an expanded variety of federal departments and agencies. Two senior CSTS leaders actively participate in regular meetings with an ASPR-led group representing many federal agencies, all of which are engaged in missions related to the behavioral health sequelae of COVID-19. The purpose of these meetings is to identify resources developed by all of the parties for integration into a common location. In addition, the group identified gaps in resources that can direct future efforts of member institutions. This activity is significant in the government-wide scope of CSTS activities and consultations. This provides the opportunity to share CSTS expertise with various federal stakeholders and to help influence the work of the participating departments and agencies. Participants in the group now typically include: the CDC, FEMA, ACE, FBI, and Vibrant Emotional Health (provider of federally-supported disaster distress and suicide prevention helplines).

Substance Abuse and Mental Health Services Administration (SAMHSA)

SAMHSA has been one of the Center's partners since SAMHSA's founding in 1992. SAMHSA is the lead federal agency responsible for supporting and improving national mental health services. CSTS leadership has continued to provide regular consultation to the SAMHSA Emergency Coordinator and the Regional Coordinators, as well as advice to the agency's Technical Assistance efforts.

Centers for Disease Control and Prevention (CDC)

Center Scientists have worked with CDC partners addressing the psychological impacts of COVID-19 on communities as well as agency responders, who have been tasked with extremes of stress in the work setting, resulting from constant and ongoing deployments, uncertainty surrounding the pandemic, and negative response in some communities to CDC recommendations. In addition, CSTS has provided consultation and support to the CDC's Community Vaccine Engagement team, providing guidance on psychological factors related to COVID-19, in order to optimize communication and messaging that enhance health behavior engagement across a broad range of communities.

INAUGURAL SUPPORT

In light of the community concerns and threats of violence in the nation's capital and around the country, the CSTS Director and Deputy Director were consulted by representatives from the National Guard of NY, NV, TN, MI, NH, and DC to explore ways to assist Service members who were activated in support of the Presidential Inauguration activities. This collaboration involved sharing education resources from the Center as well as assisting the National Guard with efforts to prepare Guard members to manage unique exposures during activation and how to support Service members and their families following return from activations.

PROFESSIONAL ORGANIZATIONS

National Association of State Mental Health Program Directors (NASMHPD)

The Center's nearly two-decade-long relationship with NASMHPD continues to thrive and expand. NASMHPD is a membership organization representing state mental health authorities (Commissioners) responsible for preparedness, response, and recovery from large- and small-scale disasters. CSTS assists the Commissioners in addressing the many challenges inherent in those systems, including issues faced by military families and veterans who are served by the state public mental health systems. Leaders of both organizations are in frequent and regular contact throughout the year to share concerns and strategies together. NASMHPD remains a key distribution and utilization vehicle for the Center's targeted public information products.

The relationship with NASMHPD became even closer during 2020 in response to COVID-19 and the challenges faced by the states. This continued in 2021.

In 2021, the Deputy Director and an Associate Director responded to a request for consultation from NASMHPD regarding supporting state mental health authorities. A senior representative from DHHS ASPR joined the consultation that covered topics including practical advice regarding state mental health activation of emergency plans, inclusion in state Continuity of Government (COG) and Continuity of Operations Plan (COOP) plans, leadership roles, support of staff, monitoring of service recipients, and the relationship to January 6 events. This request resulted in CSTS and ASPR leading a national webinar entitled, "Leadership during COVID-19, Vaccine Distribution, and the Unrest." Participants included the Authorities themselves as well as their Medical Directors and other senior staff. The presentation focused on the complexity and interaction of ongoing events, their personal and programmatic implications for senior leaders, and potential considerations in the future. This represents the second such presentation NASMHPD has requested from CSTS for their

membership in the era of COVID-19.

Currently, NASMHPD hosts monthly meetings that include CSTS leaders, ASPR, and others as appropriate to identify challenges, share resources, and promote harmonization of federal behavioral health efforts germane to the public mental health system, with an ongoing focus on the mental health impacts of the COVID-19 pandemic, and other disaster events on community members and organizations.

National Child Traumatic Stress Network (NCTSN)

The Center has been an integral partner with NCTSN since its inception. This close relationship has continued during 2021. As an example, a CSTS Associate Director was a central member of a NCTSN group to discuss COVID-19, grief, and loss in children. This group included 16 experts in the field of child grief and trauma.

Military Child Education Coalition (MCEC)

MCEC's mission is to support the educational, developmental, and social-emotional needs of military-connected children worldwide. CSTS has had a long and productive partnership with MCEC.

National Academies of Sciences, Engineering, and Medicine (NASEM)

The Deputy Director was invited to deliver a presentation entitled "Climate-Related Disasters and Mental Health: Impact, Risk, and Interventions" as part of an activity on "The Interplay Between Environmental Exposures and Mental Health Outcomes." This activity was hosted by the NASEM Standing Committee on Emerging Science for Environmental Health Decisions, to better understand the impact of environmental disasters on communities, including specific effects on marginalized populations that may be exacerbated by underlying health inequities and systemic racism.

The American Psychiatric Association (APA)

CSTS personnel assisted in the initiation of the APA's efforts in disaster psychiatry by establishing the Committee on the Psychiatric Dimensions of Disas-

ter in 1992. The Center has continued to be actively involved in this and other APA activities for the past three decades. CSTS works with the APA and other national medical associations to educate and train health professionals on disaster and preventive psychiatry.

During 2021, CSTS leadership further strengthened the APA's role in disaster and preventive psychiatry, with the Center's Deputy Director continuing to serve as Chair of APA's Disaster Committee and two CSTS Scientists serving as members of the committee in positions of leadership. Center Scientists provided consultation to APA leadership on issues of national mental health related to the colliding disasters that occurred against the backdrop of the global COVID-19 pandemic.

The CSTS Deputy Director and a Senior Scientist presented an invited Distinguished Lecture during the APA's 2021 Annual Meeting on individual and community trauma. The meeting was attended by 586 APA members and included a Q&A session after the presentation. The talk highlighted the work of CSTS in better understanding the broad impact of trauma on individuals and communities in which they live and work, from the neurobiological changes to the expression of distress, risky health behaviors, and psychological disorders. The presentation also addressed the broad range of interventions delivered immediately following trauma as well as following the onset of clinical disorders.

American Association of Directors of Psychiatry Residency Training

Four CSTS Scientists delivered a workshop for members of the American Association of Directors of Psychiatry Residency Training on training residents in core principles of disaster and preventive psychiatry. This interactive workshop drew nearly 50 Psychiatry Residency Program Directors from around the country. The workshop highlighted important principles of disaster and preventive psychiatry, highlighting how many of these principles build on existing skills already taught in Psychiatry training programs. The workshop was followed by group discussions regarding current training efforts, barriers to training, and other aspects of how to

implement this training and education to prepare future generations of psychiatrists to support their patients and communities through effective disaster preparedness, response, and recovery.

College for Behavioral Health Leadership (CBHL)

The CBHL comprises public and private leaders in behavioral health across the nation. The CSTS Deputy Director was invited by CBHL leadership to consult on concerns being expressed by member organizations regarding stress related to the transition back to the workplace during the COVID-19 pandemic. The CSTS Deputy Director also delivered a presentation on understanding the effects of prolonged crisis events and how to protect mental health, well-being, and functioning during COVID-19 to the largest CBHL organization consisting of over 800 personnel working in over a dozen countries. CBHL has disseminated numerous CSTS fact sheets to all member organizations, including fact sheets on managing the stress of returning to work as well as issues of grief and stress during the holiday season during the pandemic.

Tragedy Assistance Program for Survivors (TAPS) Institute

CSTS has been a partner and advisor to TAPS for many years. In 2021, an Associate Director co-presented a webinar entitled "Grief Leadership: What Can We Learn From the Story of the Life and Service of Captain America?" to the TAPS Institute for Hope and Healing. The webinar was open to the general public and approximately 75 individuals attended.

A CSTS Scientist consulted on the TAPS Scientific Advisory Board for their virtual quarterly gathering. The goal of this meeting was to inform advisory board members of the TAPS mission, discuss their current initiatives, and identify opportunities for scientists to further engage with military survivors.

First Responder Center of Excellence

The First Responder Center of Excellence is a national organization dedicated to protecting the lives of first responders nationwide. Since its inception,

it has had a significant focus on behavioral health factors impacting their members.

At its 2021 Annual Meeting, a CSTS Associate Director gave the initial keynote address to its virtual Fire Service Behavioral Health Symposium. His address was titled “Public Health, Behavioral Health, and the First Response Community: Exploring the Intersections.” There were approximately 1,700 participants.

Another CSTS Senior Scientist spoke at the same symposium with an address entitled “Preparing Clinicians for our Nation’s Military.” He presented an overview of the training of military physicians and mental health providers from a historical and contemporary perspective. The points he emphasized were the need for clinical competence, cultural competence, and understanding operational support.

Accreditation Council on Graduate Medical Education

The Accreditation Council on Graduate Medical Education asked the Deputy Director to serve as a subject matter expert and consultant in their establishment of a well-being curriculum to enhance education, protect health, and reduce incidence of long-term burnout in resident physicians. In addition, they sought to fully leverage his role as Chair of the Disaster Committee for the APA in addressing issues of well-being and sustainment of the workforce through COVID-19 and other disasters.

Federation of Associations in Behavioral and Brain Sciences (FABBS)

A CSTS Scientist attended the annual meetings of the FABBS Board of Directors and Council (held virtually). In her role as Member-at-Large on the Board, she co-led breakout sessions on (1) Connecting Science to Policy and (2) Advocating for the Behavioral and Cognitive Sciences at NIH. Also attending were representatives of the Office of Behavioral and Social Science Research, National Institutes of Health, National Science Foundation, American Psychological Association, Government Accountability Office, and representatives of the 29 scientific societies comprising FABBS.

Mount Sinai Health System

Center Scientists were consulted by the Well-Being Center for the Mount Sinai Health System to discuss adapting military principles to enhance resilience for health care workers during times of increased stress resulting from COVID-19 as well as increased episodes of interpersonal violence in the workplace. Mount Sinai subsequently developed a peer support program modeled after the military “Battle Buddy” concepts in order to promote safety, social support, and self-efficacy and enhance well-being and sustain operational performance during acute and prolonged crisis events.

STATE AND CITY CONSULTATIONS

California

A CSTS Associate Director was asked by a coalition of California organizations, an integrated effort between University of California, San Francisco (UCSF), The California Department of Health, and UCLA, to advise on stress-related issues of COVID-19 case-finders and contract-tracers. As a result of those discussions, he was invited to present a webinar entitled “Disaster Behavioral Health & COVID-19: Applied History & Novel Challenges.” It was presented at a Town Hall meeting of the UCSF Communities of Practice. A question-and-answer period followed the presentation, and he responded in writing to questions remaining from the webinar. There were 228 people in attendance.

New York City

CSTS Scientists have been very involved in the New York City response to the COVID-19 pandemic, and these relationships have continued in 2021. The Department Chair and a CSTS Senior Scientist facilitated focus groups with wellness leaders from multiple hospitals in New York City as part of the HERO-NY project.

Missouri

At the request of the Missouri Department of Mental Health, a CSTS Associate Director provided consultation on conceptualization and development of the State’s and Department’s approach to ad-

dress the psychosocial responses to multiple and simultaneous stressors, such as natural disasters, pandemics, social unrest, community violence and economic hardship.

Florida

The CSTS Deputy Director was contacted by the Florida Blue health insurance provider, which is leading a coalition of organizations at the governor's request to support community health and recovery following the Surfside condominium collapse. This coalition includes the Florida state emergency management and mental health authorities, the governor's office, Health and Human Services, the Red Cross, and other private sector organizations providing a range of resources to victims and other community members. He engaged with the group to better understand their focus and goals, and provided consultation regarding the range of impacts, populations at risk, and approaches to interventions throughout the disaster life cycle. He also provided them with CSTS resources to support their efforts.

INTERNATIONAL OUTREACH

The reach of CSTS consultation activities extends beyond the nation's borders to the international community. The following are examples of CSTS international activities in 2021.



Dr. Morganstein speaking at an international conference.



International Ministerial 5-Eyes Alliance

The Center Director and Deputy Director continued work with the 5-Eyes Mental Health Research International Collaboration (MHRIC). The 5-Eyes MHRIC met to share evolving challenges and best practices around mental health and force protection related to COVID-19 and other converging disasters. The group collaborated on sharing resources and practices following the withdrawal of troops and resettlement of citizens from Afghanistan, including publishing an article in a respected international journal on important aspects of supporting mental health and well-being of Service members who may have fought in or during Operation Enduring Freedom and for whom the transition of military forces out of Afghanistan may have a range of psychological and behavioral effects. In addition, the 5-Eyes MHRIC authored a scholarly review article of pathways to mental health care for military Service members and veterans, similarities and differences in these across nations, and how they have evolved over time.

World Psychiatric Association (WPA)

A CSTS Scientist participated in the 20th WPA World Congress of Psychiatry Panel Discussion 04, entitled "Classification of Mental Disorders: Unresolved Issues." The Panel included experts from Germany, Thailand, Russia, Mexico, Morocco, and the U.S. The audience for this virtual conference included more than 3,000 viewers from 108 different countries.

This CSTS Scientist made a presentation that was included in a WPA webinar series entitled “Meet the Expert.” The topic was “The Interaction of Psychiatric Classification and Epidemiology Developments.” It focused on the influence of classification on the ability to identify mental disorder cases in populations and the reciprocal impact of epidemiological findings on classifications over the past 100 years. The webinar had an international audience of 650 attendees.

The Center Deputy Director was invited to talk on the impact of COVID-19 on global mental health with a focus on health care workers. The presentation addressed the broad mental health impact of COVID-19 and unique effects and exposures for the health care workforce, groups at elevated risk for adverse outcomes and various protective factors, and a framework for public mental health interventions by individuals, organizations, and leaders that can promote well-being and sustain operations during prolonged crisis events, such as the COVID-19 pandemic.

International Initiative of Mental Health Leadership (IIMHL)

In 2021, the Center continued its partnership with IIMHL. IIMHL represents senior public mental health leadership in member countries focusing on improving mental health services. Member countries are the U.S., Canada, England, Scotland, the Republic of Ireland, Australia, New Zealand, and Sweden.

The Netherlands

The CSTS Deputy Director presented on the topic of leadership issues related to reintegration and recovery at a multi-national event established by the Netherlands Ministry of Defense and the Invictus Games, entitled “Warrior Care in the 21st Century.” The event brought together global leaders in military health to discuss current and emerging issues of readiness and force health protections in order to facilitate recovery from COVID-19, and included representatives from the U.S., United Kingdom, the Netherlands, Australia, and New Zealand. The lessons learned will inform global health security measures pertaining to COVID-19 and future global health emergencies.

European College of Neuropharmacology (ECNP)

The CSTS Director was an invited speaker for the ECNP Traumatic Stress Network “Hot Topics” virtual meeting. During the meeting, he presented an overview of the Army STARRS based on previous publications. Attendees included students, trainees, and psychiatrists from more than 30 countries.

Germany Ministry of Defense

The Department Chair and a CSTS Scientist met with a delegation from the German Ministry of Defense visiting USU, WRNMMC, and the DHA HQ to exchange information regarding ongoing research on identification of risk and protective factors related to suicide in Service members, as well as treatments for combat-related behavioral health disorders.

Israel

The Department Chair participated in a workshop at the Israeli Embassy, entitled “Introduction to Operational Stress Management: Equipping Our Frontline Heroes with Tools for Resilience.” The workshop was sponsored by the Israeli Embassy and the Israeli NGO NATAL, and participants were 18 invited international law enforcement leaders and stakeholders. Topics of discussion included implementation and development of wellness and resilience training for law enforcement personnel and other first responders.



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(Names in bold text are CSTS personnel)

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BOOKS AND BOOK CHAPTERS

Morganstein, J. C., **Mash, H. H.**, **Vance, M. C.**, **Fullerton, C. S.**, & **Ursano, R. J.** (2021). Public mental health interventions following mass casualties. In M. J. Friedman, T. Keane, P. Schnurr (Eds.), *Handbook of PTSD: Science and practice, 3rd ed* (pp. 570-588). Guilford Press.

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Presentations, Blogs, Briefings, Interviews, and Appointments

(The names in bold text are CSTS personnel.)

PRESENTATIONS

- Burned out by wellness: What's missing in the conversation about clinician wellness (Grand Rounds). **Vance, M. C.**, & Bumgardner, A. Webinar presented at Walter Reed National Military Medical Center, January 2021.
- Leadership during COVID-19, vaccine distribution, and the unrest. **Flynn, B. W.**, Kaul, R., & **Morganstein, J. C.** Webinar presentation for the State Directors Monthly Call, National Association of State Mental Health Program Directors, January 2021.
- Preparing residents for disaster response: COVID-19 and beyond. **Morganstein, J. C.**, **Vance, M. C.**, **West, J. C.**, & **Santiago, P. N.** Workshop presentation for the American Association of Directors of Psychiatry Residency Training, January 2021.
- Stress and resiliency in U.S. Army mortuary affairs operations: War fighting and humanitarian missions. **Biggs, Q. M.**, **McCarroll, J. E.**, **Ursano, R. J.**, **Fullerton, C. S.**, **Mullins-Hussain, B.**, & **Petrini, J.** Virtual oral presentation to the Central Joint Mortuary Affairs Board, January 2021.
- Climate-related disasters and mental health: Impact, risk, and interventions. **Morganstein, J. C.** Webinar presentation at the Interplay between Environmental Exposures and Mental Health Outcomes, Standing Committee on Emerging Science for Environmental Health Decisions, National Academy of Sciences, Engineering, and Medicine, February 2021.
- Disaster psychiatry and behavioral health: From war and terrorism to earthquakes and coronavirus. **Ursano, R. J.** Virtual presentation at Cherry Hospital (Goldsboro, NC), February 2021.
- Seeing light at the end...Promoting resilience in the workforce while leading toward recovery from COVID-19. **Morganstein, J. C.** Webinar presentation at the Winter Meeting on "Embracing Intentional, Compassionate Leadership," North Carolina Healthcare Association, February 2021.
- Classification of mental disorders: Unresolved issues. **Regier, D. A.** Virtual panelist participant at the World Psychiatric Association's 20th World Congress of Psychiatry, March 2021.
- Promoting workforce resilience while leading toward recovery from COVID-19. **Morganstein, J. C.** Webinar presentation at "Emotional Well-being and Recovery Town Hall," University of Illinois Health, March 2021.
- Sustaining the healthcare workforce in the COVID era: What can we learn from combat and operational stress control? **West, J. C.** Virtual presentation at the Arkansas Psychiatric Society's Annual Conference, March 2021.
- The role of grief leaders. **Cozza, S. J.**, & Harrington, J. Virtual presentation at the VA/DoD Survivors Forum, March 2021.
- A comprehensive prevention matrix to address risk factors for child neglect types in U.S. Army families. Miller, T. L., **Ogle, C. M.**, **Zuleta, R. F.**, & **Cozza, S. J.** Virtual poster presentation at the 15th Annual Amygdala, Stress, and PTSD Conference: Stress and the Mind, April 2021.
- A pilot study of app-based biofeedback in active-duty Servicemembers. Richardson, K., **Phares, A. M.**, Peechatka, A., Kahn, J., **Aliaga, P.**, **Azad, A.**, & **Teisberg, M.** Virtual poster presentation at the 15th Annual Amygdala, Stress, and PTSD Conference: Stress and the Mind, April 2021.
- Effect of individual and interpersonal factors on recovery time following multiple Florida hurricanes. **Liu, A. G.**, **Mullins-Hussain, B.**, **Mash, H. B. H.**, **Fullerton, C. S.**, **Morganstein, J. C.**, **Wang, L.**, & **Ursano, R. J.** Virtual poster presentation at the 15th Annual Amygdala, Stress, and PTSD Conference: Stress and the Mind, April 2021.
- Longitudinal neurochemical changes of Riluzole augmentation in Posttraumatic Stress Disorder treatment in a veteran sample. **Phares, A. M.**, **West, J. C.**, **Spangler, P. T.**, **Dempsey, C. L.**, Jiang, S. H., Lin, A. P., **Hillman, K. I.**, **Bolis, M.**

- A., & **Benedek, D. M.** Virtual poster presentation at the 15th Annual Amygdala, Stress, and PTSD Conference: Stress and the Mind, April 2021.
- National Guard and Reserve Soldiers: Social support trajectories and suicide ideation. **Wang, J., Ursano, R. J., Gifford, R. K., Dinh, H., Weinberg, A.,** Cohen, G. H., Sampson, L., & Galea, S. Virtual poster presentation at the 15th Annual Amygdala, Stress, and PTSD Conference: Stress and the Mind, April 2021.
- Nightmare deconstruction and reprocessing for trauma-related nightmares in military Service Members and veterans: Preliminary pilot results. **Azad, A., Benedek, D. M., Bolis, M. A., Dempsey, C. L.,** Gill, J., **Hillman, K. I., Phares, A. M., West, J. C., Zhang, L.,** Hu, X., & **Spangler, P. T.** Virtual poster presentation at the 15th Annual Amygdala, Stress, and PTSD Conference: Stress and the Mind, April 2021.
- Psychological resilience support material for Service Members working with human remains: The MA-STAR pocket card. **Biggs, Q. M., Morganstein, J., Mullins-Hussain, B., Petrini, J., McCarroll, J. E., Fullerton, C. S., & Ursano, R. J.** Virtual poster presentation at the 15th Annual Amygdala, Stress, and PTSD Conference: Stress and the Mind, April 2021.
- RECONsolidation of traumatic memories to ResOLve Posttraumatic Stress Disorder (RECONTROL): Preliminary results. Dunbar, K. E., O'Malley, H. S., Bellini, P. G., **Spangler, P. T., Probe Adams, D., Dempsey, C. L.,** Gray, R. M., & Roy, M. J. Virtual poster presentation at the 15th Annual Amygdala, Stress, and PTSD Conference: Stress and the Mind, April, 2021.
- Social closeness and support are associated with lower risk of suicide among U.S. Army Soldiers. **Dempsey, C. L., Benedek, D. M.,** Zuromski, K. L., Nock, M. K., **Aliaga, P., Ao, J., Georg, M. W., Mullins-Hussain, B., Weinberg, A., & Ursano, R. J.** Virtual poster presentation at the 15th Annual Amygdala, Stress, and PTSD Conference: Stress and the Mind, April 2021.
- Mental health & COVID-19: Promoting resilience and sustaining healthcare workers. **Morganstein, J. C.** Grand Rounds presentation at Nemours/Alfred I. DuPont Hospital for Children, April 2021.
- Seeing light at the end...Promoting resilience in the workforce while leading toward recovery from COVID-19. **Morganstein, J. C.** Webinar presentation at the Physician Business Leadership Program, Iowa Hospital Association, April 2021.
- Depression in U.S. Army Soldiers who handle the remains of the dead. **Biggs, Q. M., McCarroll, J. E., Fullerton, C. S., Mullins-Hussain, B., Petrini, J., Steward, A. E., Wang, L., & Ursano, R. J.** Virtual poster presentation at the Association for Psychological Science Virtual Convention, May 2021.
- Effect of individual and interpersonal factors on recovery time following multiple Florida hurricanes. **Fullerton, C. S., Liu, A. G., Mullins-Hussain, B., Mash, H. B. H., Morganstein, J. C., Wang, L., & Ursano, R. J.** Virtual poster presentation at the Association for Psychological Science Virtual Convention, May 2021.
- Social closeness and support are associated with lower suicide risk among US Army Soldiers. **Dempsey, C. L., Benedek, D. M.,** Zuromski, K., Nock, M. K., Brent, D. A., **Ao, J., Aliaga, P. A., Weinberg, A., Mullins-Hussain, B.,** Heeringa, S. G., Kessler, R. C., Stein, M., & **Ursano R. J.** Virtual poster presentation at the Association for Psychological Science Virtual Convention, May 2021.
- Sex differences in U.S. Army suicide attempts during the wars in Iraq and Afghanistan. **Naifeh, J. A., Mash, H. B. H., Dinh, H. M., Fullerton, C. S., & Ursano, R. J.** Virtual poster presentation at the Association for Psychological Science Virtual Convention, May 2021.
- Moral injury and COVID-19: Challenges for today, implications for tomorrow. Maass-Robinson, S., Yellowlees, P., Gise, L., & **Morganstein, J. C.** Webinar presentation for the Annual Meeting of the American Psychiatric Association, May 2021.
- Identifying factors creating the historically unequal impact of disasters including COVID-19 upon marginalized communities. Bailey, R. K., Shear, M. K., Gise, L., Robinson, S., & **Morganstein, J. C.** Webinar presentation for the Annual Meeting of the American Psychiatric Association, May 2021.
- Individual and community trauma: Impact, risk, and interventions. **Morganstein, J. C., & Wynn, G. H.** Distinguished Lecture presented at the Annual Meeting of the American Psychiatric Association, May 2021.
- Depression in U.S. Army Mortuary Affairs Soldiers. **Steward, A. E., Mullins-Hussain, B., Petrini,**

- J., Biggs, Q. M., McCarroll, J. E., Fullerton, C. S., Wang, L., & Ursano, R. J.** Virtual poster presentation at Research Days, USUHS, May 2021.
- Enhancing sustainment and mental health force protection for military personnel during COVID-19 and beyond. **Morganstein, J. C.** Virtual presentation at the Pandemic COVID-19: Lessons Learned and Efforts to Reinforce Health Security to Accelerate COVID-19 Handling Conference, Indonesian Army, May 2021.
- Grief leadership: What can we learn from the story of the life and service of Captain America? **Cozza, S. J., Carey, D. F., & Harrington, J. A.** Webinar presentation at the Tragedy Assistance Program for Survivors (TAPS) Institute for Hope and Healing, May 2021.
- Preparing clinicians for our nation's military. **West, J. C.** Keynote address at the virtual National Fire Service Behavioral Health Symposium, First Responder Center of Excellence, May 2021.
- Public health, behavioral health, and the first response community: Exploring the intersections. **Flynn, B. W.** Keynote address at the virtual National Fire Service Behavioral Health Symposium, First Responder Center of Excellence, May 2021.
- Disasters & mental health: Protecting health and promoting recovery in pandemics, terrorism, war, & beyond. **Morganstein, J. C.** Presentation at "Disaster Management 2021 and Beyond: Lessons Learned from Israeli, Canadian, and US Experience," American Healthcare Professionals and Friends for Medicine in Israel, June 2021.
- Enhancing mental health and recovery for military and civilian communities during COVID-19 and other disasters: The critical role of grief leadership. **Morganstein, J. C.** Presentation at "Warrior Care in the 21st Century," Invictus Games and Netherlands Ministry of Defense, June 2021.
- Enhancing well-being and sustainment for healthcare workers during COVID-19 and beyond. **Morganstein, J. C.** Presentation at Annual Meeting, Society for Nuclear Medicine and Molecular Imaging, June 2021.
- Finding structure in chaos during COVID: Enhancing psychological health for the military and beyond. **Morganstein, J. C.** Presentation at "COVID-19 Research Day," Uniformed Services University, Henry Jackson Foundation for the Advancement of Military Medicine, and the Walter Reed Army Institute of Research, June 2021.
- Mental health in the COVID-19 pandemic (II). **Ursano, R. J.** Webinar panelist presentation for Disaster Psychiatry Canada, June 2021.
- Stimulant sensitivity is associated with alcohol use in women but not men. Fisher, V. L., Keppler, E., Wu, C. Y., Allen, K. J. D., & **Gabbay, F. H.** Virtual poster presentation at the Annual Meeting of the Research Society on Alcoholism, June 2021.
- Strategies to provide meaningful application information to program directors in a Step 1 pass/fail world. **West, J. C.** Presentation at the Association of Directors of Medical Student Education in Psychiatry, June 2021.
- Seeing light at the end... Promoting resilience in the workforce while leading toward recovery from COVID-19. **Morganstein, J. C.** Webinar presentation at Summer Conference Series, Behavioral Health Affiliate of Iowa, July 2021.
- The impact of COVID-19 on grief and loss. **Cozza, S. J.** Panel presentation at the Child Trauma and COVID-19: An NCTSN Summit supporting the long-term recovery of our nation's children and families, National Child Traumatic Stress Network, July 2021.
- Challenges in handling human remains after the September 11, 2001 World Trade Center attack and the June 24, 2021 Florida condominium collapse. **Biggs, Q. M.** Oral presentation (virtual) at the Defense Support of Civil Authorities (DSCA) Mortuary Affairs Synchronization, August 2021.
- A Curriculum for Clerkship Students on Stress and Coping in the Time of COVID. **West, J. C., Vance, M. C., & Morganstein, J. C.** Virtual poster presentation at Association for Academic Psychiatry, September 2021.
- Disaster mental health: From 9/11 to COVID-19 and beyond. **Morganstein, J. C.** Presented at Grand Rounds, SUNY Downstate Health Sciences University, September 2021.
- Light at the end of COVID-19: Where are we now and what's needed to protect health and sustain operations. **Morganstein, J. C.** Presented to the Well-Being Committee, Accreditation Council of Graduate Medical Education, September 2021.
- Protecting the mental health of communities during COVID-19 and other disasters: Finding structure in chaos. **Morganstein, J. C.** Presented at Hero's Journey Home Symposium, John P. Mayhugh

- Foundation, September 2021.
- Protecting mental health in COVID-19 and Beyond: What have we learned and how do we prepare for future disasters? **Morganstein, J. C.** Presentation at the 62nd Annual Conference, The National Dialogues in Behavioral Health, sponsored by National Association of County Behavioral Health and Developmental Disability Directors, Western Interstate Commission for Higher Education Behavioral Health Program, and National Association of State Mental Health Program Directors, September 2021.
- The MA-STAR pocket card: psychological resilience resources for leaders of personnel working with human remains in COVID-19 pandemic and other mass fatality events. **Biggs, Q. M., Morganstein, J. C., Petrini, J., Mullins-Hussain, B., McCarroll, J. E., Fullerton, C. S., & Ursano, R. J.** Virtual poster presentation at the 21st World Psychiatric Association, World Congress of Psychiatry, October 2021.
- Association of high-risk firearm storage with PTSD in U.S. Army soldiers and veterans with children. **Cozza, S. J., Fisher, J. E., Ogle, C. M., Zhou, J., Zuleta, R. F., West, J. C., Fullerton, C. S., & Ursano, R. J.** Virtual presentation at American Academy of Child and Adolescent Psychiatry's 68th Annual Meeting, October 2021.
- A discussion on the global pandemic and mental health. **Morganstein, J. C.,** Sridhar, D., Hassan, I. Panel discussion for Dentons Global Law Firm, October 2021.
- Five latent classes of child neglect and associated risk factors. **Ogle, C. M., Zhou, J.,** Miller, T., & **Cozza, S. J.** Virtual presentation at the International Society for Traumatic Stress Studies' 37th Annual Meeting, November 2021.
- Post-traumatic stress disorder and family structure in deployed U.S., Army mortuary affairs Soldiers. **Biggs, Q. M., McCarroll, J. E., Fullerton, C. S., Petrini, J., Mullins-Hussain, B., Steward, A., Wang, L., & Ursano, R. J.** Virtual poster presentation at the 37th Annual Meeting of the International Society for Traumatic Stress Studies, November 2021.
- Predictors of suicidal ideation in individuals bereaved by combat, accident or suicide. **Fisher, J. E., Zhou, J., Probe Adams, D., Zuleta, R. F., & Cozza, S. J.** Virtual presentation at the 37th Annual Meeting of the International Society for Traumatic Stress Studies' 37th Annual Meeting, November 2021.
- Preventing and Responding to Mass Violence, Domestic Terrorism, and Hate Crimes - What Works and Why. **Flynn, B. W.** Virtual panel presentation at the 37th Annual Meeting of the International Society for Traumatic Stress Studies, November 2021.
- Risk of suicide attempt in reserve versus active component soldiers during deployment to the wars in Iraq and Afghanistan. **Naifeh, J. A., Herberman Mash, H. B., Dinh, H. M., Fullerton, C. S., & Ursano, R. J.** Virtual poster session presented at the 37th Annual Meeting of the International Society for Traumatic Stress Studies, November 2021.
- Social closeness and support are associated with lower risk of suicide among U.S. Army Soldiers. **Dempsey, C. L., Benedek, D. M.,** Nock, M. K., Zuromski, K. L., Brent, D. A., **Ao, J., Aliaga, P. A., Mullins-Hussain, B., Weinberg, A.,** Heeringa, S. G., Kessler, R. C., Stein, M. B., & **Ursano, R. J.** Virtual poster session presented at the 37th Annual Meeting of the International Society for Traumatic Stress Studies, November 2021.
- Enhancing well-being and sustainment for healthcare workers during COVID-19 and beyond. **Morganstein, J. C.** Presentation at Physician Grand Rounds, Billings Clinic, November 2021.
- Grief leadership to enhance military readiness and protect mental health in disasters. **Morganstein, J. C.** Webinar presented at the DiMiMed International Conference on Disaster and Military Medicine, November 2021.
- Adapting military lessons to enhance psychological resilience and operational sustainment of the healthcare workforce in a prolonged global disaster. **Morganstein, J. C.** Presented for the Jennings Lecture Series, Northeast Georgia Medical Center, December 2021.
- Climate-related disasters & mental health: Impacts, risks, and interventions. **Morganstein, J. C.** Presented at the Annual Conference titled "The Intersection of Disaster Medicine and Public Health with Climate and Health," Society for Disaster Medicine and Public Health, December 2021.
- Promoting workforce resilience and operational sustainment in COVID-19. **Morganstein, J. C.** Town Hall and Psychiatry Grand Rounds, Rhode Island Hospital and Hasbro Children's Hospital, December 2021.

INTERVIEWS AND BRIEFINGS

- **Drs. Ursano and Morganstein** were highlighted in a *Psychiatric News* article, “Aftermath of 9/11 Attacks Helped Crystallize Principles of Psychological First Aid”
- The USU Pulse Blog highlighted **Dr. Ursano and Dr. Morganstein** in their article, “20 Years Later: How 9/11 Shaped ‘Disaster Psychiatry.’”
- Dr. Benedek was interviewed by Hamazi Barma, host of the Finding Humanity podcast, for a podcast on combat-related PTSD. The Finding Humanity podcast has an audience of more than 500,000 persons.
- Dr. Morganstein was interviewed by HCPLive for a podcast on dealing with mental health effects of disasters such as COVID-19. This 30-minute interview was featured and shared at APA 2021 and explored a broad range of issues such as the psychological and behavioral impacts of disasters, who is at risk, and ways to help individuals and communities improve function and recovery more quickly.
- Dr. Stephen Cozza participated in a One in Ten podcast presentation for the National Children’s Alliance (NCA) discussing child maltreatment in military families.
- Drs. Benedek and Naifeh met with a delegation from the German Ministry of Defense visiting USU, WRNMMC, and the DHA HQ to exchange information regarding ongoing research on identification of risk and protective factors related to suicide in Service members, as well as treatments for combat-related behavioral health disorders.
- Dr. Stephen Cozza and Dr. Ogle provided a briefing of the Center, the Child and Family program, and the ongoing Maltreatment study to Lee Kelley and David Julian of the Military Community and Family Policy (MCFP). The goal of this briefing was to identify key areas of interest for MCFP, as well as potential collaboration and funding opportunities.
- Dr. Morganstein was interviewed by TIME Magazine about ways to manage the stress of holiday gatherings during the COVID-19 pandemic. The story addressed issues of planning in advance to consider personal priorities as well as anticipating challenging interactions with family members and how to respond to foster connections and enhance self-care. The story was read by 83 mil-

lion people on TIME’s website and affiliated news sites.

- The USU Pulse featured a blog interview with Dr. Morganstein on the topic of managing the stress of social gatherings during the holidays, and highlighted CSTS and the Department of Psychiatry resources, including an educational fact sheet to aid in planning and decision-making that fosters health and well-being when planning for holiday gatherings during the COVID-19 pandemic.

AWARDS AND APPOINTMENTS

- Dr. Ursano was appointed as the USU representative on the Military Health System After Action Review (AAR) panel. This panel is mandated by the NDAA-21, Section 731.
- Dr. Mash was appointed as a Guest Editor for *Disaster Medicine and Public Health Preparedness*.
- Dr. Mash was appointed as an Associate Editor for *Disaster Medicine and Public Health Preparedness*. In this Associate Editor role, she identified submitted COVID-19-related manuscripts with a behavioral and/or mental health focus for review consideration.
- Dr. Morganstein was selected to receive the national Bruno Lima Award in Disaster Psychiatry, which recognizes outstanding contributions of APA members in the care and understanding of the victims of disaster. This includes members of APA District Branches and State Associations who epitomize the APA’s highest ethical, clinical, and professional standards, while engaged in one or more of the following activities: Providing consultation, education, training, and awareness on mental health and disaster issues; Providing direct service delivery as part of a disaster response team; Designing disaster response plans.
- The Accreditation Council on Graduate Medical Education asked Dr. Morganstein to serve as a subject matter expert and consultant in their establishment of a well-being curriculum to enhance education, protect health, and reduce incidence of long-term burnout in resident physicians.
- Dr. Scharf received the 2021 Sigourney Award. The Sigourney Award annually rewards outstanding work that advances psychoanalytic thought and practice with international recognition.

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Evaluation 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
Family Violence and Trauma Project	IMCOM
Military-Related Risk for Child Neglect in DoD Families: A Population Study to Inform Future DoD Child Neglect Prevention Efforts	MCFP
Pilot Trial of Nightmare Deconstruction and Reprocessing, a Novel Treatment for PTSD-Related Nightmares and Insomnia	USAMRMC
Continuation Pilot Trial of Nightmare Deconstruction and Reprocessing, a Novel Treatment for PTSD-Related Nightmares and Insomnia	USAMRMC
Identifying Predictors of Treatment Response in Service-members with Posttraumatic Stress Disorder Related Sleep Disturbances: Use of Large Datasets to Improve Treatment Selection over the Military Lifecycle	USAMRMC
Center for the Study of Traumatic Stress (CSTS) Program	DHP
Personalized Medicine Approach to Light Treatment for Increasing Alertness and Performance in Operational Settings	ONR Global
Identifying Motivations for Service Members and Veterans Owning Firearms, Storing Them in Unsafe Conditions and Using Them to Hurt Others or Themselves	CDC
Suicide Prevention Program (SPP)	DHP
Responder Organizations & COVID: Coping with Trauma & Promoting Resilience. A Survey of NIOSH COVID-19 Responders	NIOSH

Partnerships

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Retirement ceremony for Drs. Benedek, Hamaoka, and Wynn.

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