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## Acronyms Used in the Text

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NEPEC
Northeast Program Evaluation Center

NHRVS
National Health and Resilience in Veterans Study

OMHSP
Office of Mental Health and Suicide Prevention

PBI Network
Practice-Based Implementation Network

PC-PTSD-5
Primary Care Screen for PTSD for DSM-5

PCL-5
PTSD Checklist for DSM-5

PE
Prolonged Exposure

PGC
Psychiatric Genomics Consortium

PILOTS
Published International Literature on Traumatic Stress

PTSD
Posttraumatic Stress Disorder

REACH-VET
Recovery Engagement and Coordination for Health – Veterans Enhanced Treatment

STAIR
Skills Training in Affective and Interpersonal Regulation

STRONG STAR
South Texas Research Organizational Network Guiding Studies on Trauma and Resilience

TRACTS
Translational Research Center for Traumatic Brain Injury and Stress Disorders

TRAIN
Training Finder Real-time Affiliate Integrated Network

TVMI
The Veterans Metric Initiative

UP
Unified Protocol

VA
Department of Veterans Affairs

Project VALOR
Veterans After-Discharge Longitudinal Registry

VHA
Veterans Health Administration

VISN
Veterans Integrated Services Network

WET
Written Exposure Therapy

WoVeN
Women Veterans Network
For many years, the National Center has been involved in research and outreach efforts related to suicide prevention. Suicide is now the tenth most common cause of death in the United States and a problem that disproportionately affects the nation’s Veterans, so work in this area is a clear priority for us and throughout the Department of Veterans Affairs (VA). In the introduction to this Fiscal Year (FY) 2018 Annual Report, we summarize our recent and ongoing work on the relationship between posttraumatic stress disorder (PTSD) and suicide.

Our investigators have led groundbreaking research on the epidemiology of suicide and have helped establish PTSD as an independent risk factor for suicide. Our investigators also have been involved in efforts to identify prevention and intervention strategies for suicide. As effective strategies are developed, we have leveraged our resources to disseminate best practices through our PTSD Mentoring and Consultation Programs. We are also studying novel ways to use computer modeling to help individual clinics optimize implementation of best practices in suicide prevention.

Other key research efforts in the past year include completing enrollment of more than 900 Veterans in a study of the effectiveness of Prolonged Exposure (PE) versus Cognitive Processing Therapy (CPT), continuing the Consortium to Alleviate PTSD (CAP) that is jointly funded by VA and the Department of Defense (DoD), and funding of a new VA Cooperative Studies Program (CSP) trial to examine three commonly prescribed medications for insomnia in Veterans with PTSD. Other research accomplishments are highlighted in the “Major Research Initiatives” section of this report.

In education and outreach, our efforts have benefitted Veterans as well as the community at large. We quickly responded to the many national crises that arose over the past year—including wildfires, hurricanes, and episodes of mass violence—by providing online information and clinical consultation. We developed a guide to help families and friends of those with PTSD understand the disorder. We continued development of our online and mobile applications, including updated versions of Mindfulness Coach, PE Coach, and PTSD Family Coach. Lastly, our website has been redesigned and we rebranded our publication database from Published International Literature on Traumatic Stress (PILOTS) to PTSDpubs.

We experienced some important personnel changes, too. In April 2018, Dr. Josef Ruzek retired from the Dissemination and Training Division, where he had served as Director since 2008. Dr. Craig Rosen is serving as Acting Director and Dr. Shannon Wiltsey Stirman is serving as Acting Deputy Director. Dr. Steve Southwick at our Clinical Neurosciences Division has moved into a Senior Consultant role, and Dr. Chadi Abdallah is serving as the Acting Deputy Director at this Division. Dr. Brian Marx was selected as the new Deputy Director at our Behavioral Science Division, replacing Dr. Danny Kaloupek, who retired in October after serving in this role since 1989. And at the Executive Division, Dr. Paul Holtzheimer was selected as the Deputy Director for Research.

As we approach our 30th anniversary next year, we believe the National Center continues to demonstrate excellence in our mission to improve the health and well-being of Veterans with PTSD. I hope you find this report both interesting and informative.

Paula P. Schnurr, PhD
Executive Director
Suicide is the tenth leading cause of death in the United States, and one of the few causes for which the rate is increasing over time. Critically, the rate of suicide in Veterans is higher than in the civilian population and has increased over the past two decades at a much faster pace; this is especially true for women Veterans and those not engaged in VA care. Overall, it is estimated that 20 Veterans die by suicide every day, making this an important focus for everyone who is concerned about the well-being of Veterans.

The National Center for PTSD has had an ongoing focus on suicide for many years. The relationship between suicide and PTSD is complex, but the available data generally suggest that PTSD may be an independent risk factor for suicide. The National Center therefore established “PTSD and Suicide” as a key operational priority in 2017 to formalize its efforts to increase understanding of the relationship between PTSD and suicide. The objectives are to investigate the relationship between PTSD and suicide, develop strategies to predict and prevent suicide among Veterans with PTSD, and work to ensure that systems are in place to connect Veterans with the care they need.

The Relationship Between PTSD and Suicide

“Suicidality” encompasses a range of behaviors: suicidal ideation (thinking suicidal thoughts), suicide attempts, and death by suicide. Many studies have found that PTSD is an independent risk factor for suicidal ideation and behaviors, even in the context of additional mental health issues, such as depression. Studies with Veteran samples have found that male and female Veterans with PTSD are 1.8 and 3.5 times more likely, respectively, to die by suicide than male and female Veterans who do not have PTSD.

However, the relationship between PTSD and suicidality in all its forms is not clear or straightforward. Not everyone who experiences suicidality is suffering from PTSD or from any other mental health issue, and the reverse is true as well: most people with PTSD are not suicidal. In fact, PTSD is only one of many risk factors for suicide; depression and other mental health difficulties, substance use disorders, lack of social support systems, and many other variables also increase risk for suicide. Moreover, the effect of multiple risk factors can be severe: for example, when...
PTSD and depression co-occur, their effect on suicide is much greater than what could be explained by either condition independently.

Suicide is a relatively uncommon event, which makes it difficult to study directly. Suicidal ideation is more common than completed suicides, and therefore can provide larger samples for study; however, only a small percentage of those who think about suicide attempt it, and only a small portion of those who attempt suicide will die that way.

One approach to studying suicide has therefore been to use large databases that include data from many people, so that there are enough cases of suicides in the population for analysis. VA databases are useful in this way, but are often limited by the fact that they include only basic demographic, medical, and mental health information. Clinical data from VA gives an incomplete picture about suicide among Veterans, since well over half of Veterans do not use VA health care. National databases that could be suited to studying suicide often do not contain sufficient information on risk and protective factors, such as whether the individual had PTSD or other mental health concerns.

Dr. Rani Hoff, Director of the National Center's Evaluation Division, was previously Acting Director of Research and Program Evaluation for Suicide Prevention with the Office of Suicide Prevention. She says that, even with those limitations, “There has been a lot of progress in understanding the epidemiology of suicide. We have a pretty good handle on the demographics—that is, what demographic groups are at higher or lower risk.” It is clear, for example, that Veterans are at greater risk of suicide than the general population. In 2016, the suicide rate was 1.5 times greater for Veterans than for non-Veteran adults, after adjusting for age and gender, and the rate of suicide among Veterans increased by more than 30% between 2001 and 2014.

Male and female Veterans differ markedly in suicidality. The rate of suicide among male Veterans is nearly 40% higher than it is for civilian men, but the rate for women Veterans is 180% higher than for civilian women, and the rate for women is climbing faster than among men. Men and women attempting suicide differ in their choice of means: more than 70% of men used firearms in their suicide attempts, compared with just over 40% of women, so men’s suicide attempts are more likely to end in death. Women, however, are more likely to have experienced sexual trauma, which often has more serious negative consequences than other types of trauma and is a significant predictor of subsequent suicide.

![Veteran suicide deaths by mechanism and gender in 2001 and 2014.](https://www.ptsd.va.gov/Prevention/docs/VeteranSuicideDeathMechanismGender20012014.pdf)

In the past few years, researchers have used comprehensive databases and advanced statistical methods to disentangle the complex relationships among risk factors and suicide. Dr. Amy Street, Deputy Director of the Women’s Health Sciences Division, has been working with data from the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS); the dataset contains information from the records of more than 1.6 million military personnel and includes information gathered through surveys from a portion of that population. According to Dr. Street, “Our goal is to overcome some of the limitations inherent in studying suicide by using large data systems, which allow more sophisticated analytic methods.”

Dr. Jaimie Gradus of the Women's Health Sciences Division has been at the forefront of using advanced analytic techniques to assess risk factors and the association between PTSD and suicide. “We know that suicide can be caused by multiple factors, often in combination, so it’s hard to understand it using traditional statistical methods.” A novel approach to estimating risk for suicide is machine learning, which refers to the use of high-level analytical tools and computing power to study the interrelationships among multiple factors. “Machine learning will help us to better understand the constellation of risk factors that predict suicide and related behaviors. Patients don’t usually walk into their clinician’s office with just one issue.”

For example, in one study using machine learning, Dr. Gradus was able to study gender-specific associations among various risk factors and suicidal ideation in a national sample of Veterans who had been deployed to Iraq and Afghanistan. She found several associations with suicidal ideation among men, including depression, PTSD, and somatic complaints. For women, sexual harassment during deployment emerged as a key factor that interacted with PTSD and depression and demonstrated a stronger association with suicidal ideation than among men.

Dr. Gradus has also been working with the Danish national health care and social registries, which contain health information on all 5.4 million citizens of Denmark. The database contains information on more than 40,000 suicides and suicide attempts. Besides the potential information to be gained from using machine learning on such a rich source of data, the size of the sample itself will allow for examination of subgroups of individuals—age and gender cohorts, for example—that will hopefully yield additional insights into which individuals are at greatest risk for suicide.

Strategies to Predict and Prevent Suicide

VA has taken many steps over the years to better understand suicide and implement programs aimed at suicide prevention. The REACH-VET program (i.e., Recovery Engagement and Coordination for Health – Veterans Enhanced Treatment) seeks to identify at-risk Veterans and connect them with the specialized care and support they need. The Veterans Crisis Line is available 24 hours a day through phone and text to connect Servicemembers and Veterans in crisis to trained responders and other support.
Dr. Brian Marx of the Behavioral Science Division has been working to identify risk factors for suicide through Project VALOR (Veterans After-Discharge Longitudinal Registry), a longitudinal study that follows Veterans over time and looks at factors that influence their health and well-being, perhaps before they are at acute risk of suicide. Knowledge about risk factors can be translated into prevention strategies that directly target these factors at the most opportune time. According to Dr. Marx, “Once a person has been identified as high-risk, there are a number of interventions that can be tried.”

One strategy that VA has adopted is individual “safety plans.” Clinicians at VA facilities are trained to recognize patients who are at risk for suicide and to work collaboratively with them to develop a plan that specifies warning signs and outlines specific coping strategies, family contacts, and professional assistance that the patient can use. Research has shown that safety plans that are comprehensive and personalized to the unique situation of the individual patient can be very valuable for reducing risk of future suicidal behavior.

According to Dr. Marx, however, safety plans are not always as effective as they could be. “There is a need to ensure that clinicians are sufficiently trained on how to create a safety plan, and that they have the time to do it. We have found that in many cases not everyone who should have had a plan actually had one, and even for those who did, the plans were often incomplete or not sufficiently individualized.” Research has shown that patients are especially vulnerable to suicide in the days immediately following discharge from the hospital, so ensuring that they leave with a high-quality safety plan can be crucial to suicide prevention.

Prevention can also be enhanced by treating the underlying mental health problems that increase risk for suicide, such as PTSD and depression. The National Center has been a leader in the development, evaluation, and implementation of treatments for PTSD, including CPT and PE, that are now widely used in clinical settings. In recent years investigators have examined the effect of these treatments on suicidal ideation. To date, evidence from National Center investigators suggests that CPT and

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**Examining the Effect of PTSD Treatments on Suicidal Ideation**

Change in the likelihood of endorsing suicidal ideation during a randomized clinical trial of PE and CPT. Decreases in PTSD symptoms were associated with decreases in suicidal ideation through long-term follow-up (LTFU; 10 years post-treatment).


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Change in the likelihood of endorsing suicidal ideation during the study as a function of treatment condition. Declines in suicidal ideation were evidenced in both the CPT and PE groups, but this effect was larger for people receiving CPT.
PE do in fact reduce suicidal ideation, suggesting that trauma-focused psychotherapy may be an appropriate intervention in these cases.

A major challenge today is to find preventive strategies that work at an earlier stage of risk, prior to the onset of suicidal ideation or a first suicide attempt. “A lot of work around prevention is late-stage intervention—that is, identifying folks who have made suicide attempts and trying to help them,” says Dr. Street. Researchers believe that early-stage interventions could lead to a reduction in suicides over time, but it can be difficult to demonstrate that connection scientifically. Dr. Street notes, “If we can intervene in a way that improves someone’s overall quality of life now, will it pay off in less suicidal behavior in 10 or 15 years? Our goal needs to encompass the bigger picture: we don’t just want to prevent suicides, but to ensure people have lives worth living.”

According to Dr. Hoff, research on suicide prevention is moving into the public health arena, reaching Veterans who don’t connect with the VA health system, family members, general health care providers, and others in the community. “The strategies that have the hope of greatest impact are not necessarily mental health interventions,” she says. “Social networks, relationships, having the means to support a family, not being isolated or a burden to others. Some of these are mental health touch points, but many are not.”

Beyond suicide prevention efforts, there is interest in developing more direct interventions for individuals at high risk for suicide. One promising avenue for reducing acute suicidality is the substance ketamine. Investigators at the National Center’s Clinical Neurosciences Division are among those who discovered that ketamine has rapid-acting and robust antidepressant effects, and subsequent research has confirmed its efficacy. Rapid reductions in suicidal ideation have been demonstrated as well, sometimes within hours. This finding is especially significant, as acute suicidal thoughts and behaviors require immediate intervention; currently available antidepressant medications require weeks to months to provide clinical benefit, and often do not specifically target suicidality. Division researchers are also actively investigating the anti-suicidal effects of ketamine in individuals with both PTSD and depression.

Of course, once effective interventions have been identified, it is important to reach out to Veterans and encourage them to participate in the process. Dr. Hoff says, “The success of all these efforts depends on whether you are reaching Veterans who are willing to engage in prevention strategies and treatments. There is a stigma around mental health in general, what it means to get care through VA, and discussion of suicide itself.” She is hopeful that some of the education and communication tools that the National Center has developed—mobile apps and self-assessment tools, for example—can be helpful in encouraging Veterans to engage with evidence-based mental health treatment that may reduce risk of suicide.

“The goal needs to encompass the bigger picture: we don’t just want to prevent suicides, but to ensure people have lives worth living.”

-Dr. Amy Street

Looking ahead, the availability of large databases and machine learning techniques offer intriguing possibilities for developing effective interventions based on well-established risk and protective factors. With large computing power at their disposal, researchers can run sophisticated simulations to evaluate the impact of various intervention techniques, alone or in combination.
Improving Systems to Identify and Manage Suicidality

A major challenge to managing suicide risk is ensuring that the insights and techniques learned from research are implemented in routine care, and that VA health care facilities are set up in the best way to ensure that Veterans get the help they need. According to Dr. Lindsey Zimmerman of the National Center’s Dissemination and Training Division, “Many clinicians say system factors are what get in the way of getting patients timely access to VA’s highest quality care—things like how appointments are scheduled and how each clinician operates in the multidisciplinary mix of the team.”

Dr. Zimmerman has been studying clinic organizational systems using participatory system dynamics, an approach to understanding and managing the many variables that affect how the health care system is able to deliver care. She and her colleagues have developed a program called Modeling to Learn, which allows frontline staff to simulate how changes in their procedures and protocols can meet specific clinic goals. This method can identify approaches to improvement on a “hyper-local” basis—that is, ensuring that local staff are deeply involved in the process and that actions optimize the ability of local staff to better respond to the needs of Veteran patients from their own community. Dr. Zimmerman notes, “Sometimes clinics can find improvements they didn’t know were there.”

“Rather than the costly approach of trial-and-error learning, we encourage clinics to ‘test, don’t guess.’ For example, some changes in a complex system may be higher payoff actions, where a small change can create a big effect.” Dr. Zimmerman believes that testing and simulation can be extremely valuable. “Mistakes are costly, in terms of money, staff time, and patient suffering. The costs are so high we don’t want to just guess! We want to use the best evidence possible regarding whether a particular change will work to improve local care quality.”

Simulation provides immediate feedback on the short- and long-term impact of proposed changes on both patients and staff. For example, a long waiting list for appointments can be a problem for suicide prevention, because individuals in crisis need to have immediate access to care. However, there are many tradeoffs to consider in addressing these acute patient needs, including the possible impact of changes in scheduling procedures on the care of existing patients. Modeling to Learn helps teams improve the care patients receive over time, from their initial wait for services to completing a therapeutic course of treatment.

To address suicide prevention specifically, Dr. Zimmerman and her team released a new module for Modeling to Learn in 2018 that helps teams examine the effects of using standardized symptom scales, or measurement-
based care, to more efficiently identify when Veterans are improving or getting worse. Clinicians can step some patients up to higher levels of care when necessary; or they can move patients who are doing better to lower levels of care, thereby freeing providers’ time to accommodate new patients.

In addition to systems-level changes, the National Center disseminates information about best practices directly to clinicians and clinic leaders through the PTSD Consultation and Mentoring Programs. The PTSD Consultation Program provides guidance on working with individuals with PTSD, including those who are at risk for suicide. The PTSD Mentoring Program promotes best practices in the clinical and administrative components of specialty care, including advancement in suicide risk assessment and prevention, through an extensive network of PTSD program directors. In 2018 the Mentoring Program sponsored a conference that focused on improving strategies for recognizing suicide risk and coordinating suicide prevention care in PTSD programs. The meeting was highly successful at achieving targeted outcomes, and 97% of participants agreed that their attendance helped them meet VHA strategic objectives. Six months later, 95% of participants had met with local REACH-VET Coordinators to outline plans for coordination of care and identification of high-risk Veterans, EBP template increased 12%, and nearly half of programs piloted a template that used measurement-based care to share clinical data with Veterans to show their progress or the need to change treatment course.

Looking to the Future

According to Executive Director Dr. Paula Schnurr, there are several key priorities for the National Center’s work on PTSD and suicide over the next few years.

- Establish a clearer understanding of the relationship between PTSD and suicide, both directly and in terms of how PTSD relates to other risk factors. The ability to predict suicidality with greater certainty will lead to more successful prevention.

- Further explore whether the treatments and technologies that are effective for PTSD can also reduce suicidality. The National Center has significant experience with evidence-based treatments (EBTs) for PTSD, and there is evidence that these treatments reduce suicidal ideation, but better data are needed to determine whether these treatments reduce risk for all suicidal behaviors.

- Support the initiatives undertaken by VA nationally to provide seamless, proactive mental health support, work closely with public health agencies, and develop comprehensive data sources.

The National Center has a critical role to play in advancing the field’s understanding of how trauma and PTSD relate to suicide. The geographic reach and multidisciplinary nature of the National Center staff give the Center a unique ability to access many sources of data, examine the interrelationship of many variables, and establish partnerships with other agencies throughout government, academia, and the health care community.

Moreover, the connection between researchers and clinicians that is fundamental to the National Center’s structure gives investigators a unique ability to incorporate lessons from the field into their research—and creates pathways for bringing the most up-to-date best practices to the field, where they can have a positive impact on the lives of Veterans.
Expanding Understanding of PTSD: Major Research Initiatives in FY 2018

For nearly 30 years, the National Center for PTSD has been in the forefront of research aimed at understanding and treating PTSD. During FY 2018, researchers at the National Center led 134 funded studies—ranging from investigations at a single location to projects across multiple sites—including studies undertaken in collaboration with partner organizations in the government, academic institutions, and agencies outside the United States. Investigators published 233 peer-reviewed journal articles, book chapters, and books, and prepared an additional 117 in-press and advance online publications.

The National Center continues to support cutting-edge clinical trials and biological studies via the CAP, a seven-year, $42 million award to the National Center and the South Texas Research Organizational Network Guiding Studies on Trauma and Resilience (STRONG STAR) Consortium at the University of Texas Health Science Center. CAP is now in its fifth year, with 11 studies currently underway. Another large project, a multi-site CSP study to examine three commonly prescribed medications for PTSD-related insomnia (trazodone, eszopiclone, and gabapentin), got underway in FY 2018.

A new major initiative launched in FY 2018 is the Longitudinal Investigation of Gender, Health, and Trauma (LIGHT) study. Investigators will examine the influence of community violence on the longitudinal course of PTSD and health outcomes, including reproductive health in women Veterans.

The National Center’s research activities are driven by six operational priorities. The first five priorities, established in 2013, are Biomarkers, Treatment, Care Delivery, Implementation, and initiatives aimed at updating the Diagnostic and Statistical Manual of Mental Disorders—Fifth Edition (DSM-5). A sixth priority—PTSD and Suicide—was added in FY 2017. The following sections highlight some of the research initiatives undertaken during FY 2018 to address these six operational priorities. (Appendix A contains a comprehensive listing of research projects that took place at each of the National Center’s seven Divisions.)

Biomarkers

The National Center is dedicated to research aimed at identifying measurable biological factors that inform
the diagnosis, assessment, prevention, and treatment of PTSD. Biomarker identification may lend insight into early detection of at-risk individuals and enable the development of personalized or new therapeutic approaches for PTSD. This work benefits from collaborations between National Center investigators and several other organizations, including the Translational Research Center for Traumatic Brain Injury and Stress Disorders (TRACTS), the Psychiatric Genomics Consortium (PGC), the PTSD Working Group of the ENIGMA (Enhancing Neuroimaging Genetics through Meta-Analysis) Consortium, the Million Veteran Program (MVP), and the Army STARRS consortium.

VA’s National PTSD Brain Bank, established in 2014, continues to expand under the direction of Dr. Matthew Friedman, Senior Advisor to the National Center. This is the only brain bank in the world devoted specifically to studying the biological bases of PTSD, and currently has an inventory of over 300 PTSD and comparison brains.

In FY 2018, investigators in the Clinical Neurosciences Division made advances in the areas of genetics, neuroinflammation, neuroendocrinology, and brain imaging. Molecular and genetic studies utilized tissue gathered from the PTSD Brain Bank to show that PTSD is associated with increased inflammatory signaling, as well as cell adhesion and cell proliferation in brain regions associated with PTSD. Recently published work demonstrated that women with PTSD are at heightened risk for decreased conversion of progesterone into its anxiety-reducing metabolites, which has implications for innovative treatments that target these hormones.

Allopregnanolone and pregnanolone (ALLO) are neuroactive steroids that positively and potently modulate inhibitory GABAa receptors in the brain, resulting in anti-anxiety and other behavioral effects. This figure shows that the ratio of ALLO to its precursor, 5α-DHP, has a blunted response to stress in women with PTSD compared to women without PTSD. (Figure 3 in article.)


Other ongoing work is combining brain imaging with novel pharmacological manipulation, including guanfacine, a medication that lowers activity of the sympathetic nervous system and is used to treat high blood pressure and attention-deficit hyperactivity disorder, and perampanel, an antiepileptic drug that targets glutamate receptors. These studies will help investigators better understand how altering specific neurotransmitter systems can change regional brain activity and affect trauma and mood symptoms.


Expression of the gene for IL1A, an important inflammatory cytokine, is lower in the dorsolateral prefrontal cortex of patients with PTSD and depression compared to controls. Panel A shows the relative fold change between the groups, while panel B shows the statistical model used (statistically significant findings (p < 0.05) are highlighted in bold). (Figure 1 in article.)
Treatment Engagement, Efficiency, and Effectiveness

The National Center has long been a leader in the development and evaluation of EBTs for PTSD. One of the most ambitious efforts in treatment research is CSP #591, an investigation of PE and CPT at 17 VA facilities across the country. The investigators completed enrollment of 916 participants in FY 2018, and results are expected to be available in FY 2019.

Increasing engagement in evidence-based psychotherapies (EBPs), delivering effective care more efficiently, and reducing dropout from PTSD treatments continue to be goals of the National Center. A prime example of an efficient treatment recently developed by National Center investigators is Written Exposure Therapy (WET), a five-session exposure-based treatment for PTSD that has shown strong effects with non-Veteran patients. A high-profile study published in FY 2018 demonstrated that this brief intervention was as effective as CPT, had a lower rate of dropout, and could be implemented successfully with Veterans.

In collaboration with STRONG STAR, researchers are testing the efficacy of two alternative delivery protocols for CPT: a variable-length protocol, in which treatment length is based on patient progress, and delivery in an intensive outpatient format with active-duty military Servicemembers. Center investigators are also exploring novel treatment approaches that have mechanisms of action different from existing PTSD treatments, including ketamine, neurofeedback, and ketamine-enhanced PE.

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Investigators in the Dissemination and Training Division are examining patient characteristics that are associated with effective engagement in care and risk for subsequent mental health problems; the latter is intended to facilitate provision of resources tailored to specific Veteran needs as a mechanism for increasing engagement in care. A new trial is examining the impact of AboutFace, a public awareness campaign to help Veterans recognize PTSD and motivate them to seek treatment, on engagement with EBTs.

Care Delivery, Models of Care, and System Factors

Improving access to PTSD treatments in many settings, including in the home, and across periods of transition, is an important goal of the National Center’s research activities. To this end, investigators are examining service use and the delivery of care using technologies such as telehealth, web-based interventions, and mobile apps.

The Veterans Metric Initiative (TVMI) is a large-scale longitudinal study that is looking at newly separated Servicemembers’ reintegration experiences. Data from this study revealed that female Veterans within the first year of separation had a greater likelihood of experiencing mental health concerns and seeking health care. Ongoing work is examining the relationship between Veterans’ functioning and their service use; findings suggest that functional impairments may increase the likelihood that women seek treatment, but may have the opposite effect for men.

Several ongoing studies are assessing the benefits of web-based technologies and mobile apps to increase Veterans’ access to mental health care and to enhance outcomes. Specific examples include a web version of PE (Web-PE) delivered to military personnel and Veterans. Researchers...
are also comparing the effectiveness of PTSD Coach, a mobile app designed to help individuals with PTSD learn about and self-manage their symptoms, with traditional treatment for reducing PTSD symptoms in Veterans utilizing primary care services.

National Center investigators are developing strategies and tools that can be used in clinical settings to improve access to care. One project, conducted by the Behavioral Science Division, found that strategic changes in clinic intake procedures, such as distributing materials describing treatment options and adding a second intake session focused on collaborative treatment-planning, were associated with increased rates of retention in EBPs for PTSD.

Investigators in the Dissemination and Training Division continue to use participatory systems dynamics modeling to compare the likely outcomes of potential solutions to access problems and then to select an optimal solution to implement. Preliminary data indicate substantially reduced wait times for treatment enrollment at facilities using this method, compared to those using routine enrollment strategies.

### Implementation

A key objective of the National Center is to ensure that best practices are being implemented throughout the health care system. Investigators are involved in the implementation of evidence-based screening and treatment across VA, including ongoing assessment of the rate at which PE and CPT are gaining acceptance and usage and investigation of the effectiveness of different training models on trainee delivery of PE.

During FY 2018, Executive Division investigators examined the use of EBP and antidepressants (fluoxetine, sertraline, paroxetine, and venlafaxine) in VA over a 10-year period. A steady increase in the use of PE and CPT was seen over this time, but there was little change in the use of antidepressants. Other implementation research efforts include expansion and evaluation of the web-based version of Skills Training in Affective and Interpersonal Regulation (STAIR) entitled webSTAIR. webSTAIR is a free online site that guides users through a range of tools designed to enhance communication skills, improve emotion regulation, and address interpersonal relationship problems. Nine health care systems now have webSTAIR Champions, who are delivering varying levels of coaching alongside Veterans’ use of the site.

Researchers are looking at ways to increase the use of EBPs for PTSD and associated problems across treatment settings. One study is testing a facilitated implementation toolkit to increase use of EBPs in VA PTSD clinics. Another is testing whether a tailored set of implementation strategies increases the use of PE within the military health system. National Center investigators continue to disseminate an intervention shown to reduce or prevent aggression within trauma-exposed military and Veteran families across VA, with expansion to a military installation and an underserved urban civilian setting. In FY 2018, the investigators demonstrated that training and implementation were successful overall and identified potentially addressable barriers to implementation.
The DSM-5 is an established classification and diagnostic tool that specifies the diagnostic criteria for all currently recognized psychological disorders. During FY 2018, the National Center continued to update PTSD assessments for the DSM-5 and explore the utility of the DSM-5 PTSD criteria.

An ongoing project by Behavioral Science and the Executive Division aims to validate a Primary Care Screen for PTSD for DSM-5 (PC-PTSD-5) cutoff score by comparing it to the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5), which is the recognized diagnostic interview for PTSD. The PC-PTSD-5 is currently used across VA for mandatory PTSD screening. Other projects aim to validate the CAPS-5 in a military population; validation with a VA sample has already been completed.

Investigators in the Clinical Neurosciences Division have been working to establish the prevalence of PTSD based on DSM-5 criteria. One study revealed lifetime and past-month PTSD prevalence rates among Veterans of 8.1% and 4.7%, respectively. Another project compared the prevalence of PTSD according to criteria from the DSM-5 and the International Classification of Diseases 11th Revision (ICD-11), showing the prevalence was higher using DSM-5 criteria.

PTSD and Suicide

This developing portfolio aims to explain the relationship between PTSD and suicide, and to develop strategies to prevent suicide among Veterans with PTSD. A summary of work in this area during FY 2018 is highlighted in the introductory section of this Annual Report: Understanding the Relationship Between PTSD and Suicide: Challenge and Opportunities.

In addition to the specific initiatives discussed in the introduction, other important studies are underway. Behavioral Science Division investigators are using machine learning to identify interactions among risk factors that predict future suicide attempts (PTSD diagnosis, traumatic brain injury, prior suicide attempts, and others) among Veterans enrolled in Project VALOR; they are also exploring how these interactions may differ for men and women.

Clinical Neurosciences Division investigators have utilized data from the National Health and Resilience in Veterans Study (NHRVS) study to identify risk factors for suicidal ideation and suicide attempts in combat Veterans, including PTSD, moral injury, loneliness, alcohol use disorder, and denial-based coping. Investigators are also examining whether metabotropic glutamate receptor type 5 (mGluR5), which is involved in fear learning and emotion regulation, is a biomarker for suicidal ideation in individuals with PTSD, and potentially a new treatment target.

Executive Division researchers continue to advance suicide prevention work through collaborations with the National Center for Patient Safety (NCPS), the Office of Mental Health and Suicide Prevention (OMHSP), and the Center of Excellence for Prevention of Suicide (COE). An ongoing collaboration with OMHSP validated a prior finding of high-risk periods for suicide following psychiatric discharge. Other ongoing work is using analysis of clinical note text in a VA PTSD treatment setting to evaluate problems in the patient-therapist relationship that precede death by suicide.
Honors and Awards Received by National Center Staff in FY 2018

Teddy Akiki, MD  
*Clinical Neurosciences Division*  
New Investigator Award, American Society of Clinical Psychopharmacology  
New Investigator Award, International Society for CNS Clinical Trials and Methodology

Rachel Kimerling, PhD  
*Dissemination and Training Division*  
Division 56 Poster Award, American Psychological Association

Andrea Neitzer, MS, CCRC  
*Dissemination and Training Division*  
Poster Competition Award for “Targeted Strategies to Accelerate Evidence-Based Psychotherapy Implementation in Military Settings” (PIs Rosen & McLean), Traumatic Brain Injury Research Forum

Suzanne Pineles, PhD  
*Women’s Health Sciences Division*  
Nga B. Pham Memorial Award for Excellence in Clinical Psychology Training, VA Boston Healthcare System Psychology Service

Jillian Shipherd, PhD  
*Women’s Health Sciences Division*  
Gay and Lesbian Medical Association Achievement Award: Health Professionals Advancing LGBT Equality

Quyen Tiet, PhD  
*Dissemination and Training Division*  
Mid-Career Innovator Award, Association for Behavioral and Cognitive Therapies

Shannon Wiltsey Stirman, PhD  
*Dissemination and Training Division*  
Stanford Department of Psychiatry and Behavioral Sciences Chairman’s Polymath Award

Team Award including: Katherine Juhasz, MS; Shannon McCaslin, PhD; Jason Owen, PhD; Jeremy Tevis, BFA  
*Dissemination and Training Division*  
Executive Division  
Audience Choice Award at the VISN 1 Improvement + Innovation Summit for Cards for Connection

Terry Keane, PhD  
*Behavioral Science Division*  
Presidential Award for Outstanding Contributions to the Field of Trauma Psychology, American Psychological Association

Jillian Shipherd, PhD  
*Women’s Health Sciences Division*  
Gay and Lesbian Medical Association Achievement Award: Health Professionals Advancing LGBT Equality

Fellowships and Travel Awards

Filomene Morrison, PhD  
*Behavioral Science Division*  
Travel Award, Society for Biological Psychiatry

Lynnette Averill, PhD  
*Clinical Neurosciences Division*  
Alies Muskin Career Development Leadership Program, Anxiety and Depression Association of America

Lauren Sippel, PhD  
*Executive Division*  
Alies Muskin Career Development Leadership Program, Anxiety and Depression Association of America

Johanna Thompson-Hollands, PhD  
*Behavioral Science Division*  
Alies Muskin Career Development Leadership Program, Anxiety and Depression Association of America

Jillian Shipherd, PhD  
*Women’s Health Sciences Division*  
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Johanna Thompson-Hollands, PhD  
*Behavioral Science Division*  
Alies Muskin Career Development Leadership Program, Anxiety and Depression Association of America
Promoting PTSD Education: Training, Dissemination, and Communication

A major focus of the National Center is to ensure that the results of research on PTSD are disseminated to clinicians, other professionals, Veterans and their families, and the public, so that the best and most current practices can be used to help the most people. National Center professionals can take advantage of the geographic reach, connection to VA and other health care systems, and network of collaborating organizations to deploy innovative strategies for educating professionals and the public on trauma and PTSD.

Education efforts include a range of offerings—courses, brochures, videos, online resources, literature databases, and more—that incorporate the most up-to-date knowledge gained from research. In the National Center’s early days, dissemination and training took place through traditional publications and face-to-face meetings. Over the years, communication has advanced to incorporate web-based programs, telehealth approaches, mobile apps, and other new technologies as they become available.

The sections that follow highlight some of the initiatives aimed at promoting general PTSD awareness, support for providers, self-help tools, and resources for professionals during FY 2018, plus a description of some of the National Center’s online resources.

PTSD Awareness

Positive social support is an important factor in recovery from PTSD, and family and friends are an important source of that support. During FY 2018, the National Center developed Understanding PTSD: A Guide for Family and Friends (PDF), a follow-up to Understanding PTSD and PTSD Treatment (PDF), which was published in 2016. This full-color brochure is aimed at strengthening readers’ ability to help their loved ones cope with PTSD, seek help, and successfully complete treatment. The brochure provides clear information on the causes of PTSD and effective EBTs. A Spanish-language version, Entendiendo el TEPT: Guía para Familiares y Amigos (PDF), was released in FY 2018, adding to the Center’s growing number of resources in Spanish. A third title in the series, focusing on PTSD and aging, is slated for release next year.

The guide also emphasizes the need for family and friends to take care of their own mental health needs, and to this end it draws on stories included in AboutFace, the online gallery of videos featuring Veterans, family members, and clinicians talking about PTSD and the value of treatment. The stories shed light on the challenges faced by the Veterans’ loved ones, while also highlighting their strengths and the strategies they use to promote communication and healing. AboutFace has recently been expanded to include longer videos called PTSD case studies. These features weave the voices of family members and clinicians into Veterans’ accounts of their journeys through PTSD treatment.
While many of the National Center’s resources are released only after months of planning, every year also includes some efforts requiring a more rapid response. During FY 2018, the National Center responded to several devastating crises faced by the country, all within a few months: wildfires in California; hurricanes in Puerto Rico, Florida, and Texas; and a mass shooting in Las Vegas. The National Center quickly crafted online articles to help survivors and clinicians understand the psychological consequences of these events and how to address them.

In a new AboutFace case study, Dave Hanson, his family, and his provider explain how Prolonged Exposure helped bring him back to a full and happy life.

Support for Providers in the Field

Since 2011, the PTSD Consultation Program has been supporting VA providers with consultation from expert PTSD clinicians, administrators, and researchers. Because many Veterans receive their care outside VA, in 2015 the National Center began offering these services to community providers who treat Veterans with PTSD. Whether via phone or email, consultations are free, timely, and focus on EBTs.

Consultants support providers by offering information and resources about assessment, diagnosis, psychotherapy, and medications, and on ways to collaborate with VA on the care of Veterans. The program also offers a monthly webinar with free continuing education (CE) credit. There were 2,222 consultations in FY 2018, about one-fourth of which came from providers treating Veterans in community settings. PTSD Consultation Program leaders have also provided support and advice related to launching and expanding VA’s Suicide Risk Management Consultation Program, and consultants from these two programs frequently collaborate on cases that involve both PTSD and suicidality.

In the wake of the devastating natural disasters and mass violence events that took place in the past year, the PTSD Consultation Program received clearance to offer its services to community providers who had questions about the care of anyone—Veteran or civilian—who was affected by these tragedies. In March of 2018, when a fatal shooting occurred in Yountville, CA at a residential treatment program for Veterans, the National Center again responded, first with online resources for survivors and employers, and later with two national webinars for mental health providers on coping in the aftermath of incidents of workplace violence.

The VA PTSD Mentoring Program, launched in 2008, promotes best practices in the clinical and administrative components of specialty care. The program is a network of PTSD program directors who collaborate at both the regional Veterans Integrated Services Network (VISN) and national level. This year, a face-to-face meeting of all clinic directors took place, focused on increasing the reach of evidence-based practices and improving strategies to recognize risks and coordinate suicide prevention care. The Mentoring Program led a process improvement project with the Northeast Program Evaluation Center (NEPEC) to increase data collection and validation efforts for mandatory program reporting. The program also provided direct support to PTSD clinics through site visits and other facilitation strategies.
The Executive Division, with support from the VA Office of Rural Health, continued an educational outreach program in VISN 1 that uses academic detailing and facilitation to improve the treatment of rural Veterans. The program’s overarching goal is to ensure that Veterans with PTSD who live in rural areas not convenient to a specialized VA facility can receive evidence-based PTSD treatment. With contributions from experts throughout VA, the program developed an online toolkit to help providers in rural clinics understand the nature of effective PTSD care in their communities. The toolkit will be available in FY 2019.

On the patient side, the program is using a direct-to-consumer outreach effort to encourage Veterans to play an active role in their own PTSD care.

The Practice-Based Implementation (PBI) Network is a group of VA PTSD field sites and individual clinicians who are collaborating with the National Center to test new approaches to implementation. During FY 2018, the Network completed a pilot test of a learning collaborative to train and support clinicians as they integrate mobile and internet technologies into their practices. The initiative includes both providers and experts in mobile apps and online programs. The Network also developed a variety of resources this year, including a video series, handouts for providers and Veterans, and implementation materials.

The PTSD Clinician’s Exchange, the National Center’s practitioner registry, continues to link participating treatment providers in VA, DoD, and the community with practical training and resources related to 25 best practices. The Exchange is being combined with training programs from another initiative called Project Outfit. This will create an online portal with a content management system that will allow rapid updates to align with new evidence and changes in clinical practice guidelines.

VA’s Community Provider Toolkit strengthens partnerships between VA and clinicians in local communities by providing key information and resources that support culturally competent and evidence-informed clinical practice. The online toolkit has been visited over 200,000 times since it was developed in April 2013. During FY 2018, it was enhanced by the addition of a new section focusing on rural Native American Veterans, developed in partnership with the Office of Rural Health. Based on user feedback, the toolkit is currently being redesigned with enhancements focused on the Military Screening and Culture and Crisis Management (including Suicide Prevention) sections.

Clinicians, researchers, and forensic examiners rely on assessment instruments developed by the National Center, which are available for free to qualified research and clinical professionals. This year, responding to a need on the part of many assessment requestors, several key assessments were made into fillable forms. The CAPS-5, Life Events Checklist for DSM-5 (LEC-5) and PTSD Checklist for DSM-5 (PCL-5) can now all be completed entirely electronically. In the case of the CAPS-5, the assessment calculates the interviewee’s score, thus saving time and reducing the potential for errors by assessors.

Self-Help and Treatment Companion Resources

The National Center is undertaking an ambitious effort to enhance VetChange, a website for Veterans who are concerned about their drinking and PTSD symptoms.
Behavioral Science Division investigators, along with colleagues at VA Boston Healthcare System and Boston University, created a provider-facilitated version of the program. The reworked VetChange will allow providers to assign specific modules to their patients and track their progress toward abstinence or drinking reduction goals. Initially, this version of VetChange will be pilot tested as part of a research project, with the eventual aim of deploying it across the VA system.

The Dissemination and Training Division has continued its pioneering work in development of mobile apps with the release of Aware, an app that allows users to track mood and related variables through their smartphones; the app is providing data for a research study that is currently underway. This year also saw the release of redesigned versions of three additional apps: Mindfulness Coach, PE Coach, and PTSD Family Coach. Research versions of two apps that target sleep problems, Insomnia Coach and CBT-I Coach (for use with Cognitive Behavioral Therapy for Insomnia), were created as well; these apps are being tested in a research context to determine their effectiveness. In all, the National Center has released and maintained 16 mobile apps since the launch of the award-winning PTSD Coach in 2011, all available for free to users worldwide.

Beyond MST, a military sexual trauma (MST) recovery app, is under development by a team of investigators from the Women's Health Sciences and Dissemination & Training Divisions. This mobile app focuses on promoting recovery from experiences of sexual harassment and/or sexual assault experienced during military service. While it is not intended to be a replacement for mental health care, it can be used independently or in conjunction with psychotherapy and is appropriate for both male and female survivors of MST.

Two CRAFT courses are now available.

Cards for Connection is an easy-to-access deck of playing cards for homeless Veterans. Each of the 52 cards has a unique design, and in using them to play card games, Veterans will have repeated exposure to simple coping skills and information about accessing critical VA resources. A prototype was distributed this year, and the set will be refined based on feedback from early users. The cards won the Audience Choice Award at the VISN 1 Improvement and Innovation Summit in 2018.

Two online courses designed to help family members cope with PTSD and related problems were launched this year, one intended to help family members cope more effectively with a Veteran’s PTSD symptoms and the other focusing on addiction. These courses, adaptations of CRAFT (Community Reinforcement and Family Training),
are intended to build understanding and help family members encourage their loved one to enter treatment.

Investigators at the Women’s Health Sciences Division continue to expand the reach of WoVeN: The Women Veterans Network, a network that fosters personal connections, improves well-being, and provides information to support women’s readjustment. This year, WoVeN held a retreat that trained an additional cohort of women Veteran peer leaders. WoVeN now has support groups in 10 cities across the country and offers women Veterans a [website](#) where they can connect with each other and access resources on topics including PTSD and MST.

In collaboration with the DoD, National Center experts have created RESET for Active Duty Army personnel, a one-hour video training with associated audio files designed to help Soldiers cope with intrusive thoughts following deployment. This data-supported resilience training will be made available to Soldiers through the online learning management system the Army has in place, and it is hoped that in the future it will be adapted for use by any branch of the military.

### Educational Resources for Professionals

This year, the National Center developed four new offerings in the PTSD 101 series, including courses covering PTSD and psychosis and the 2017 VA/DoD Clinical Practice Guideline for PTSD recommendations about psychotherapy and medications. PTSD 101 courses, like most of the CE courses that the National Center produces, provide free CE credits to providers nationwide. Available through the website and through [TRAIN](https://www.train.org) (Training Finder Real-time Affiliate Integrated Network), PTSD 101 courses give clinicians, researchers, and trainees 24/7 access to expert instruction in PTSD treatment.

In September 2018, the Women’s Health Sciences Division hosted a summit entitled Women Veterans, Traumatic Stress and Post-Military Health: Building Partnerships for Innovation. Researchers, clinicians, policy makers, funders, Veterans, and other stakeholders came together to engage in a series of conversations. Key goals of the summit were...
to showcase innovative women Veterans’ health research and to foster collaborations in the service of enriching the care of women Veterans.

National Center investigators partnered with the VA Psychology Training Council to create an online learning module on the Unified Protocol (UP), a therapeutic approach with relevance to a range of psychiatric disorders. The goal of the module is to provide information for clinicians who are familiar with UP and interested in training other staff who may want to use the treatment.

Online Communication Resources

A major transformation of the National Center’s website, which is the public face of the organization, will be launched in early FY 2019. Planning, organization, and development of the new site began with a research effort in 2016 that involved interviews and focus groups, and the site was subjected to a robust content and usability audit. A team of Executive Division staff and contractors then built a site that will provide a more rewarding experience for both new visitors and long-time site users.

The new site was built using a “mobile-first” framework, in recognition of the growing number of users who access the Internet solely through their smartphones. The site has also integrated more imagery and video, giving visitors immediate access to multimedia assets. Articles use an approach that allows visitors the option of getting a quick overview of the topic at hand or drilling down for more detailed information. A new “you might also be interested in” feature directs users to related site content they might otherwise have missed.

The National Center continues to make creative use of podcasts, Facebook Live videos, and other social media channels. Two podcasts produced through a partnership with the Defense Health Agency featured National Center investigators discussing PTSD and available resources. The National Center has also disseminated PTSD awareness materials at national and local events, such as National Alliance on Mental Illness and National Foundation for Suicide Prevention walks, Pride parades, and Valor Games for disabled Veterans.

Since 1989, the PILOTS database has been providing free, online access to an international, cross-disciplinary collection of journal articles, reports, books, and dissertations on psychological trauma and its consequences. PILOTS offers a custom thesaurus focused on PTSD and trauma, as well as a thorough listing of psychological tests and measures, to help searchers...
efficiently and precisely navigate the abundant scholarly literature related to PTSD. At the end of the fiscal year, the database contained more than 61,000 items, and users ran more than 45 million searches during the year.

During FY 2018, Resource Center staff worked with a consultant to develop a custom content management system. The new system will streamline the processing of records, enrich them with additional metadata, and enhance the public search capabilities of the database. The inclusion of cutting-edge semantic software with auto-tagging capabilities should accelerate the pace at which new records are added to the database, leading to a more up-to-date and comprehensive collection. The enhanced search interface provides easy, seamless access to advanced options, minimizing the effort required to construct sophisticated searches. With the upcoming launch of the new system, PILOTS will be rebranded as PTSDpubs to better clarify for potential users the subject matter and content types included in the database.

Semantic visualization of CBT subject terms used in PTSDpubs.
About the National Center for PTSD

History

The National Center for PTSD was created in 1989 within VA in response to a Congressional mandate (PL 98-528) to address the needs of Veterans and other trauma survivors with PTSD. The National Center was developed with the ultimate purpose of improving the well-being, status, and understanding of Veterans in American society. The mandate called for a COE that would set the agenda for research and education on PTSD without direct responsibility for patient care. Convinced that no single VA site could adequately serve this unique mission, VA initially established the National Center as a consortium of five Divisions.

Organization

The National Center now consists of seven VA academic COEs across the United States, with headquarters in White River Junction, Vermont. Two Divisions are in Boston, Massachusetts; two in West Haven, Connecticut; one in Palo Alto, California; and one in Honolulu, Hawaii. Each contributes to the overall Center mission through specific areas of focus.

The National Center for PTSD is an integral and valued component of VA’s OMHSP, which is within the Veterans Health Administration (VHA). OMHSP and the National Center receive budget support from VA, although the Center also leverages this support through successful competition for extramural research funding.

National Center for PTSD Quick Facts

- The National Center for PTSD was formed in 1989
- The Center has seven Divisions across the U.S., each with a distinct area of focus
- The National Center for PTSD manages the largest PTSD brain bank in the world

NATIONAL CENTER FOR PTSD | www.ptsd.va.gov
Leadership in Fiscal Year 2018

Paula P. Schnurr, PhD
Executive Director,
Executive Division, VT
Professor of Psychiatry, Geisel School of Medicine at Dartmouth

Matthew J. Friedman, MD, PhD
Senior Advisor and Founding Executive Director
Executive Division, VT
Professor of Psychiatry and of Pharmacology and Toxicology, Geisel School of Medicine at Dartmouth

Jessica L. Hamblen, PhD
Deputy for Education
Executive Division, VT
Associate Professor of Psychiatry, Geisel School of Medicine at Dartmouth

Paul E. Holtzheimer, MD
Deputy for Research
Executive Division, VT
Associate Professor of Psychiatry, Geisel School of Medicine at Dartmouth

Terence M. Keane, PhD
Division Director
Behavioral Science Division, MA
Professor of Psychiatry and Assistant Dean for Research, Boston University School of Medicine

John H. Krystal, MD
Division Director
Clinical Neurosciences Division, CT
Robert L. McNeil, Jr. Professor of Translational Research and Chairman of the Department of Psychiatry, Yale University School of Medicine

Josef I. Ruzek, PhD
Division Director (Oct-Apr)
Dissemination and Training Division, CA
Professor (Clinical Professor-Affiliated), Stanford University; Associate Professor, Palo Alto University

Craig S. Rosen, PhD
Deputy Director (Oct-Apr) Acting, Division Director (May-Sept)
Dissemination and Training Division, CA
Associate Professor of Psychiatry and Behavioral Sciences, Stanford University School of Medicine

Rani Hoff, PhD, MPH
Division Director
Evaluation Division, CT
Director of the Northeast Program Evaluation Center, CT
Professor of Psychiatry, Yale University School of Medicine

Tara E. Galovski, PhD
Division Director
Women’s Health Sciences Division, MA
Associate Professor of Psychiatry, Boston University School of Medicine
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**Susan E. Borja, PhD**  
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VA Mental Health Quality Enhancement Research Initiative, Central Arkansas Veterans Healthcare System; University of Arkansas for Medical Sciences

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**Alan L. Peterson, PhD, ABPP**  
University of Texas Health Science Center

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VA Clinical Science Research & Development

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**Jackie Maffucci, PhD**  
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**Craig Bryan, PsyD, ABPP**  
National Center for Veterans Studies, The University of Utah

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Center for Technology and Behavioral Health, Dartmouth Psychiatric Research Center, Geisel School of Medicine at Dartmouth

**Kacie Kelly, MS**  
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Center for Deployment Psychology, Uniformed Services University of the Health Sciences

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Department of Veterans Affairs, VISN 2

**Michael Fisher, MSW**  
Readjustment Counseling Services, Department of Veterans Affairs

**Michael R. Kauth, PhD**  
VA South Central MIRECC

**Kacie Kelly, MS**  
George W. Bush Presidential Center
# Appendix A: Acronyms Used in Appendix B

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>11beta-HSD1</td>
<td>11beta-Hydroxysteroid Dehydrogenase 1</td>
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<tr>
<td>AMPA</td>
<td>a-Amino-3-Hydroxy-5-Methyl-4-Isoxazolepropionic Acid</td>
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<tr>
<td>APOE</td>
<td>Apolipoprotein E</td>
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<tr>
<td>Army STARRS</td>
<td>Army Study to Assess Risk and Resilience in Servicemembers</td>
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<td>AUD</td>
<td>Alcohol Use Disorder</td>
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<tr>
<td>CAPS-5</td>
<td>Clinician-Administered PTSD Scale for DSM-5</td>
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<tr>
<td>CBT</td>
<td>Cognitive-Behavioral Therapy</td>
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<td>COE</td>
<td>Center of Excellence</td>
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<td>Cognitive Processing Therapy</td>
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<td>CSP</td>
<td>Cooperative Studies Program</td>
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<td>DoD</td>
<td>Department of Defense</td>
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<tr>
<td>DSM-5</td>
<td>Diagnostic and Statistical Manual of Mental Disorders—Fifth Edition</td>
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<tr>
<td>EBA</td>
<td>Evidence-Based Antidepressant</td>
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<tr>
<td>EBP</td>
<td>Evidence-Based Psychotherapy</td>
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<td>EEG</td>
<td>Electroencephalogram</td>
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<td>ENIGMA</td>
<td>Enhancing Neuroimaging Genetics through Meta-Analysis</td>
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<td>fMRI</td>
<td>Functional Magnetic Resonance Imaging</td>
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<td>FY</td>
<td>Fiscal Year</td>
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<td>ICD-11</td>
<td>International Classification of Diseases 11th Revision</td>
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<td>IPV</td>
<td>Intimate Partner Violence</td>
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<td>LATR</td>
<td>Later-Adulthood Trauma Reengagement</td>
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<td>Measurement-Based Care</td>
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<tr>
<td>mGluR5</td>
<td>Metabotropic Glutamate Receptor Type 5</td>
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<td>MRI</td>
<td>Magnetic Resonance Imaging</td>
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<td>Million Veteran Program</td>
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<td>nAChR</td>
<td>Nicotinic Acetylcholine Receptor</td>
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<td>Office of Mental Health and Suicide Prevention</td>
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Appendix B: Fiscal Year 2018 Research Narrative

Behavioral Science Division

The Behavioral Science Division in Boston, Massachusetts, conducts research on life adjustment after military deployment, methods to assess trauma and posttraumatic stress disorder (PTSD), innovative approaches to clinical intervention and treatment delivery, and the potential neurobiological and genomic basis of PTSD and its comorbidities.

Biomarkers

The Division has an active portfolio of genetic and neuroimaging studies involving collaborations with investigators in the Translational Research Center for Traumatic Brain Injury and Stress Disorders (TRACTS), the Department of Veterans Affairs (VA) National PTSD Brain Bank, the Psychiatric Genomics Consortium (PGC), and the PTSD Working Group of the ENIGMA (Enhancing Neuroimaging Genetics through Meta-Analysis) Consortium. During FY 2018, Division investigators have focused on the role of inflammation and oxidative stress in the biology of PTSD, and on the role of PTSD in accelerated aging.

Ongoing studies that examine PTSD and blast-related traumatic brain injury (TBI) in Veterans of Iraq and Afghanistan war zones aim to clarify the relative contribution of mild TBI and psychiatric conditions to deficits in current functioning. They also address long-term negative consequences such as neurodegenerative disease. The biomarkers examined by Behavioral Science Division studies include brain features measured by neuroimaging, as well as specific genes, polygenic risk scores, and epigenetic indicators drawn from both blood and brain tissue. New work is examining blood-based biomarkers associated with neuronal injury and inflammation.

During fiscal year (FY) 2018, Division investigators continued to use functional and structural magnetic resonance imaging (MRI) to identify neural circuitry involved in PTSD, particularly as related to memory suppression and emotion regulation.

PTSD and Suicide

Behavioral Science Division investigators are actively contributing to knowledge about PTSD and suicide, particularly in the domain of identifying risk factors for suicide. For one project, investigators are using machine learning to identify the interactions among risk factors which predict future suicide attempts using data from the Veterans After-Discharge Longitudinal Registry (Project VALOR), partitioned by gender. Specifically, risk factors assessed at baseline (e.g., PTSD diagnosis, TBI, prior suicide attempts) will be examined separately among male and female Veterans in predicting suicide attempts over the course of the 4.5 years of VALOR.

Another project aims to examine the degree to which risk factors vary in their association with future suicide attempts across demographically distinct groups. Mixture modeling was used to identify demographically homogenous groups using age, gender, race, household income, employment status, marital status, education level, and parental status. Investigators found five groups, across which there was great variability in the association between risk factors and future suicide attempts, thereby providing strong support for the idea that risk factors function very differently for different demographic groups. History of a prior suicide attempt emerged as the only significant predictor in all groups.

Treatment Efficiency, Effectiveness, and Engagement

Division investigators conduct pioneering research on treatments for PTSD, guided by the key aims of overcoming barriers to seeking care, reducing dropout, and increasing the efficiency of care delivery. One example is the internet-based treatment VetChange, which is designed for Iraqi and Afghanistan combat Veterans who report both risky use of alcohol and PTSD-related distress. The initial clinical trial produced evidence that VetChange was effective in reducing both drinking and PTSD symptoms. The research version of VetChange was subsequently modified to include a mobile-friendly public website. This version, which is applicable to Veterans of all eras, is now under evaluation. A mobile app that has key VetChange features was recently developed in conjunction with the Dissemination and Training Division and will soon begin a pilot test phase. In addition, a major extension of the VetChange web intervention is underway to directly integrate with clinical care delivered by VA providers and to evaluate its effectiveness in VA clinics.

Other Division efforts include developing and testing efficient, therapist-delivered interventions or treatment extenders, with the goals of finding approaches that require less professional
staff time and that are easier for patients to complete. A prime example is Written Exposure Therapy (WET), a five-session exposure–based treatment for PTSD that previously showed strong effects with non-Veteran patients. A high-profile study that was published in 2018 demonstrated that this brief intervention is as effective as Cognitive Processing Therapy (CPT), has a lower rate of dropout than CPT, and can be implemented successfully with Veterans.

Research on factors that link PTSD with aggression toward intimate partners has led to the development and evaluation of interventions that reduce or prevent aggression within at-risk military and Veteran families. Positive clinical trials have been published and the interventions are being implemented across the VA health care system and on one military installation. A new pilot study also is testing one of these programs in an underserved urban civilian setting.

In the area of complementary interventions, a continuing five-year study is examining the impact of two 12-week group treatments on chronic pain in Gulf War Illness. Tai Chi, a mind-body exercise that has been associated with both physical and mental health benefits, is compared with a wellness promotion intervention that is based on an existing VA model of care entitled Whole Health.

Division investigators also are examining a developmental phenomenon termed later-adulthood trauma reengagement (LATR). It involves efforts by older combat Veterans to actively reengage with wartime memories with the aim of building coherence and finding meaning in past experience. It is theorized that the LATR process has potential to lead to either positive outcomes such as personal growth or negative outcomes such as increased PTSD symptoms. An ongoing study is examining the impact of a 10-week psychosocial discussion group for older combat Veterans who report experiences consistent with the LATR process.

Care Delivery, Models of Care, and System Factors
The main example of work related to this National Center priority is a project that examines how evidence-based psychotherapy (EBP) is delivered by clinicians affiliated with the VA Boston Healthcare System Outpatient PTSD Clinic. Initial findings indicate that strategic changes in clinic intake procedures, such as distributing materials describing treatment options and adding a second intake session focused on collaborative treatment-planning, were associated with increased rates of retention in EBPs for PTSD.

**DSM-5**
Data collection is nearly complete for a study designed to validate a cutoff score for PTSD status according to Diagnostic and Statistical Manual of Mental Disorders—Fifth Edition (DSM-5) criteria based on the most recent version of the Primary Care Screen for PTSD for DSM-5 (PC-PTSD-5). The study is part of a larger effort to validate DSM-5 versions of measures that have been developed by National Center investigators. The ongoing project recruits Veterans from VA primary care locations and compares the screening measure to the gold-standard interview, the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5). The study also examines the extent to which the optimal PC-PTSD-5 cutoff score varies across subgroups of Veterans. A separate study co-lead by a Behavioral Science Division investigator aims to provide validation of CAPS-5 performance with a military population; validation with a VA sample was completed previously.

Other Important Research Prospective cohort studies. Division researchers are working on two large prospective cohort studies that collect information from strategically selected Veteran and Servicemember groups over time. The first, Project VALOR, is working with a registry of 1,649 male and female combat Veterans who became users of VA services after 2002. The project collects data about health outcomes associated with PTSD, supplemented by clinical information from VA electronic medical records. Data collection for the fourth sampling wave is now complete, with 1,205 participants (73% of the initial cohort); examination of PTSD symptom trajectories and predictors of those trajectories are in process. The next phase of the project involves collecting saliva samples from participants for future genomic analyses.

The second large investigation, the Neurocognition Deployment Health Study (NDHS), began data collection at the outset of the Iraq War in 2003. Military personnel were assessed before deployment and at several intervals afterward—making it the first prospective, longitudinal study to address the psychological impact of war zone stress. The study design allows examination of long-term emotional and neuropsychological outcomes, as well as health-related quality of life and occupational functioning. Initial papers have described PTSD outcomes; longitudinal neuropsychological outcomes; and relationships among PTSD, TBI, and neuropsychological outcomes. Data preparation and analysis are underway for an associated study that examines the adjustment of both partners and children of the Servicemembers and Veterans in the cohort.

Assessment. Division assessment research includes work with teams from the MITRE Corporation and Massachusetts Institute of Technology Lincoln Laboratory to develop a noninvasive method of PTSD detection based on voice analysis applied to interview recordings. This work identifies vocal markers related to timing and coordination of speech to determine the presence and severity of PTSD. The noninvasive nature of this approach increases its potential for real-world application.
Clinical Neurosciences Division

The Clinical Neurosciences Division in West Haven, Connecticut, focuses on research designed to establish novel treatments and uncover biomarkers of disease mechanisms related to traumatic stress, as well as research that investigates paradigms of risk and resilience. The Clinical Neurosciences Division utilizes an interdisciplinary approach that includes treatment interventions, neuroimaging, genetics, and epidemiological studies targeted at translating discoveries into therapeutic targets for PTSD and comorbid conditions.

Biomarkers

Clinical Neurosciences Division investigators are working to characterize biochemical, structural, and functional abnormalities underlying PTSD; to elucidate brain, genetic, and environmental interactions that may affect symptom expression, treatment matching, and treatment response; and to investigate the effects of drug-induced alterations in brain and neurochemical functioning. This multifactorial pursuit of biomarker identification may lend insight into early detection of at-risk-individuals and personalized or new therapeutic approaches for PTSD.

The Clinical Neurosciences Division utilizes neurogenomics to explore interactions among genotypes, phenotypes, and the environment via state of the art approaches. This work includes significant progress from the VA National PTSD Brain Bank, which conducted large postmortem analyses and next generation sequencing, characterizing altered gene expression in five different brain regions in subjects with PTSD and major depressive disorders. A unique bioinformatic pipeline has been developed within the PTSD Brain Bank to identify gene expression patterns within and between brain regions. Analyses revealed increased neuroinflammatory signaling, as well as cell adhesion and cell proliferation in these pathways. Previous work from the PTSD Brain Bank demonstrated that a specific gene, serum/glucocorticoid regulated kinase 1 (SGK1), was dramatically decreased in the prefrontal cortex of postmortem PTSD samples. Efforts to study the functional consequences of this gene alteration, such as fear memories and fear extinction, is continuing in animal models. Investigators are also evaluating strategies for raising SGK1 levels in the brain as a potential new treatment. Several other genes of interest, including FKBP5 and NPAS4, have also been targeted to detect RNA expression in subjects with PTSD.

Data from the National Health and Resilience in Veterans Study (NHRVS), which surveyed a nationally representative sample of U.S. military Veterans, revealed that Veterans having both high levels of trauma exposure and a genetic variation implicated in Alzheimer’s disease (i.e., the apolipoprotein E [APOE]ε4 allele carrier risk genotype) reported greater severity of PTSD symptoms, particularly re-experiencing symptoms. APOE ε4 allele carriers who reported both more trauma as well as higher levels of social support were less likely to screen positive for PTSD. Researchers also examined a variation in the neuropeptide Y gene (promoter rs16147) which has been shown to impact resilience to traumatic stress. Results revealed that Veterans with the “protective” genotype (T/T homozygotes) showed greater resilience to developing PTSD symptoms, particularly intrusion symptoms, even with increased levels of lifetime trauma. Investigators also continued to participate in the Million Veteran Program (MVP), where genome-wide analysis work with PTSD participants is in progress. Collaboration also continues with the PTSD PGC Workgroup and with the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS) consortium.

Clinical Neurosciences Division investigators utilize non-invasive multimodal neuroimaging methods, such as MRI, magnetic resonance spectroscopy, and positron emission tomography (PET) to investigate the structure and shape of various brain regions, functional activation patterns in gray matter, the integrity of white matter tracts, concentrations of neurotransmitters and other chemicals in the brain, as well as energy demands and usage throughout the brain. Investigators also use electroencephalogram (EEG) to evaluate changes in electrical activity in the brain pre/post ketamine treatment among patients with treatment-resistant PTSD.

Current PET research focusing on the α7 nicotinic acetylcholine receptor (nAChR), which can “tune” signaling in brain circuitry, has revealed reduced α7 nAChR levels in the amygdala and hippocampus of individuals with PTSD. Ongoing work is investigating the role of the α7 nAChR as a potential biomarker and/or treatment target for PTSD. Investigators are also evaluating the role of enzyme 11beta-hydroxysteroid...
(Clinical Neurosciences Division, continued)

dehydrogenase 1 (11beta-HSD1), which activates the stress hormone cortisol, in PTSD. Preliminary data suggests that individuals with PTSD have higher levels of 11beta-HSD1 in the medial prefrontal cortex and hippocampus. Other ongoing PET work is examining changes in dopamine levels in trauma-exposed healthy individuals who use cannabis to determine whether changes in dopamine after smoking cannabis are associated with changes in stress-related symptoms. Investigators also continue to study neuroinflammatory processes in PTSD using PET technology. Prior work indicated a link between immune alterations and PTSD following trauma exposure. Researchers are investigating whether activation of microglial cells (i.e., cells which affect immune response in the central nervous system) contributes to a neuroinflammatory etiology of PTSD.

Investigators are using a drug challenge approach with guanfacine and perampanel to better understand how α-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA) receptors affect trauma and mood symptoms. Results to date indicate that guanfacine alters the functioning of the prefrontal and locus coeruleus brain regions during tasks of cognitive performance.

Finally, work examining the neural basis of decision making under conditions of risk and uncertainty continues to identify biomarkers related to fear extinction, such as activity in the ventromedial prefrontal cortex (vmPFC). Functional MRI (fMRI) findings revealed reduced activity in the vmPFC of PTSD brains, with numbing symptoms significantly predicting neural activation. Additional work to pursue biomarkers related to fear learning was conducted using pupil dilation and study of cannabinoid receptor type 1 availability to examine individual differences as predictors of fear acquisition and extinction.

**PTSD and Suicide**

Clinical Neurosciences Division investigators are using PET technology to examine availability of metabotropic glutamate receptor type 5 (mGluR5), which has an important role in fear learning and emotion regulation, as a potential biomarker for suicidal ideation. Results revealed that individuals with PTSD had higher mGluR5 availability relative to those with major depression in multiple frontal and limbic brain regions. In PTSD individuals, mGluR5 availability was also positively correlated with avoidance, tension, and anxiety, as well as same-day suicidal ideation, effects not observed in those with depression. These findings suggest that mGluR5 may be a potential treatment target.

Clinical Neurosciences Division researchers are also investigating the use of pharmacological agents that have an acute antidepressant effect as a strategy to prevent suicide among individuals with PTSD. This work includes several projects that evaluate the anti-suicidal properties of ketamine in both treatment-resistant PTSD and depression and how neural alterations pre/post ketamine, with emphasis on synaptic connectivity, may underlie these behavioral changes.

In other work, NHRVS data revealed that moral injury was associated with suicidal thinking and attempts in combat Veterans. Specifically, transgressions by self (e.g., acting in ways that violated one’s moral code or values) were associated with elevated odds of suicidal thinking, and feelings of having been betrayed by the military (e.g., feeling betrayed by fellow service members that one once trusted) were associated with a 2-fold greater likelihood of attempting suicide. These results underscore the importance of moral injury in suicide risk models and of assessing and treating moral injury in Veterans at risk for suicide.

Using the NHRVS data, investigators also examined factors that protect against the development of suicidal thinking over a 4-year period. Results revealed that 7.5% of Veterans developed suicidal thinking. Greater loneliness, disability in activities of daily living, PTSD symptoms, physical distress, alcohol use problems, and denial-based coping increased the likelihood of developing suicidal thinking. Protective factors associated with decreased likelihood of suicidal thinking included greater social support, curiosity, resilience, and acceptance-based coping.

Other work using NHRVS data observed that alcohol use disorder (AUD) and a history of homelessness increased suicide attempts in Veterans diagnosed with PTSD. Veterans with comorbid PTSD and AUD were more than 3 times as likely as Veterans with PTSD alone to have attempted suicide in their lifetimes.

**Treatment Efficiency, Effectiveness and Engagement**

Division researchers are currently conducting: 1) a clinical trial of repeated doses of ketamine for treatment-resistant PTSD, with an added emphasis on durability of treatment response; 2) validation of a new type of treatment for PTSD using neurofeedback to specifically target activity of the amygdala, a brain region that has been found to be hyperactive in PTSD; 3) a 7-day trial of PE enhanced with a single infusion of ketamine; 4) a project examining the effectiveness of Mindfulness Based Stress Reduction for anger and aggression in Veterans with PTSD, 5) a trial of transcranial direct current stimulation on learning, memory, and brain circuitry and 6) a trial of buprenorphine and CPT for patients diagnosed with PTSD and opiate use disorder.

Finally, using data from VA Cooperative Studies Program (CSP) Study #504, which evaluated the efficacy of risperidone for chronic, antidepressant-resistant, military service-related PTSD, investigators evaluated correlates of treatment non-response. Greater severity of PTSD symptoms, particularly re-experiencing (i.e., nightmares) and emotional numbing
(Clinical Neurosciences Division, continued)

(i.e., sense of foreshortened future), was associated with non-improvement to both placebo and risperidone over the 24-week trial.

**DSM-5**

Data from the NHRVS revealed lifetime and past-month PTSD prevalence rates of 8.1% and 4.7%, respectively, with the likelihood of developing PTSD (28.0%) highest for Veterans who experienced sexual abuse during childhood. Investigators also found that 19.2% of Veterans with lifetime PTSD and 16.1% of Veterans with past-month PTSD screened positive for the dissociative subtype. Other work examined prevalence and comorbidities associated with subthreshold PTSD, finding that 22.1% and 13.5% of Veterans screened positive for lifetime and past-month subthreshold PTSD, respectively. Subthreshold PTSD was associated with substantially elevated rates of major depression and suicidal thinking, as well as reduced mental and physical functioning. Other work comparing the prevalence of PTSD according to DSM-5 and International Classification of Diseases 11th revision (ICD-11) criteria indicated higher prevalence of lifetime and past-month PTSD using DSM-5 relative to ICD-11 criteria, suggesting that ICD-11 criteria may fail to identify a considerable proportion of Veterans with clinically significant PTSD symptoms, thus affecting eligibility for health care, disability, and other services.

Finally, following a dimensional and structural evaluation of DSM-5 PTSD symptoms, investigators proposed a novel, 7-factor hybrid model of PTSD symptoms that includes: 1) intrusions, 2) avoidance, 3) negative affect, 4) anhedonia, 5) externalizing behaviors, 6) dysphoric arousal (e.g., sleep difficulties), and 7) anxious arousal (e.g., hypervigilance) symptom clusters. This model has been replicated in more than a dozen other trauma-affected populations worldwide. Further studies evaluated the nature and stability of the network structure of DSM-5 PTSD symptoms using state-of-the-art network modeling approaches. Results of these studies revealed that negative trauma-related emotions, flashbacks, detachment, and physiological reactivity to trauma cues were central symptoms of the disorder and may contribute to its chronicity. They further indicated that self-destructive behaviors associated with trauma were strongly related to suicidal thinking, thus highlighting the importance of trauma-related externalizing behaviors in predicting suicide risk in Veterans.

**Dissemination and Training Division**

The Dissemination and Training Division in Palo Alto, California, conducts research on patient needs and preferences, implementation science, the development of novel and adapted treatments that attend to patient preferences, and the development and testing of treatments that employ the potential benefits of technology-based delivery of services.

**PTSD and Suicide**

Staff are developing participatory system dynamics modeling tools that clinic teams can use optimize allocate of staff resources to different clinical activities. These tools are now being expanded to suicide management, to help teams ensure effective management of Veteran patients at high risk for suicide, without compromising overall access to or quality of care.

**Treatment Efficiency, Effectiveness, and Engagement**

Several projects are aimed at increasing patient engagement into care, improving access to care and using technology to increase the reach, efficiency and effectiveness of treatment. One study is developing a brief measure of patient characteristics associated with effective engagement in care. The measure is expected to guide identification of the type and amount of service resources needed to engage Veterans into care. A second study will focus on racial and ethnic minority patients who have been found to experience disparities in trauma exposure and mental health care. The project will develop a risk-screening tool that identifies patients at risk for subsequent mental health problems and identify resources tailored to particular patient problems and needs to increase engagement into care.

Several ongoing studies are assessing the benefits of web-based and app-based technologies to increase Veteran access to mental health care and to enhance outcomes. Telmental health services to the home are expected to increase patient engagement and access to care, but this type of service is rarely implemented to date. A hybrid effectiveness and implementation study will compare two treatments delivered to women Veterans in their homes via video teleconference: Skills Training in Affective and Interpersonal Regulation (STAIR) and Present-Centered Therapy. The goals of the study are to assess the relative effectiveness of these treatments and to identify barriers and facilitators for using video to home delivery treatment. The efficacy of a web version of Prolonged Exposure (PE), entitled web-PE, in reducing symptoms of PTSD in military personnel and Veterans is being tested. Web-PE is delivered online with therapist oversight and facilitation, and could have significant potential to increase the reach of PE to those who cannot otherwise access traditional face-to-face care. A new VA-funded study will test whether the addition of peer support increases adherence to and completion of online treatment. This trial will compare patient engagement and outcomes from using Moving Forward, a VA online version of Problem Solving Therapy, with and without peer support.
A two-site study is underway to assess the efficacy of PTSD Coach compared with traditional treatment for reducing PTSD symptoms in Veterans utilizing primary care service. Several pilot studies of mobile phone apps are near to completion, including a pilot study of app-based personalized and semiautomated coaching integrated into PTSD Coach; a pilot study of a couples-based intervention using mobile apps; and two ongoing trials of the Mindfulness Coach app in Veterans with PTSD and as an adjunct for Veterans receiving other types of medical care. A mobile cognitive control training for the treatment of alcohol use and PTSD will determine the efficacy of a novel neurocognitive intervention for improving recovery outcomes.

In collaboration with investigators from the Minneapolis VA, the Dissemination and Training Division is conducting a study to test a web-based intervention to help National Guard families encourage their loved ones to seek mental health care. Key questions concerning the methods and the extent to which social networks can be utilized to increase treatment engagement, and to improve mental and physical health outcomes, are being investigated in a study of another highly stressed population: cancer survivors.

Care Delivery, Models of Care, and System Factors
New efforts are underway to improve patient access to care by using participatory systems dynamics modeling: a collaborative quality improvement approach in which stakeholders identify specific system problems, use computer modeling to compare the likely outcomes of different potential solutions, and then select an optimal solution to implement. Preliminary data emerging from the project indicate substantially reduced wait times for treatment enrollment at facilities using this method compared to those using routine enrollment strategies. Additional funding has been obtained to assess the cost-effectiveness of this approach and to test its mechanisms of action.

A trial testing whether a curated online information resource can increase VA, Department of Defense (DoD), and community providers’ knowledge about core elements of the VA/DoD Clinical Practice Guideline for PTSD is ongoing. Analyses are still underway, but initial results suggest that the intervention increased clinicians’ familiarity with some key practices. A long-term project is the development of a practitioner network across both VA and DoD that can test strategies for implementing best practices. The network is currently engaged in quality-improvement projects, but can become a resource for implementation science research in the future.

Implementation
A new study is evaluating how to simplify assessment of the quality of delivery of cognitive-behavioral therapy (CBT) for PTSD, depression, and anxiety disorders. A second ongoing study is evaluating competing strategies intended to enhance and sustain the delivery of CPT; one strategy emphasizes fidelity to the protocol through expert consultation and online resources, and the other focuses on using continuous quality-improvement strategies to improve fit and to address barriers to treatment delivery. Investigators involved in the evaluation of the national rollout for PE are investigating the effectiveness of different training models on trainee delivery of PE. Another study compares methods of assessing treatment quality and fidelity (important implementation outcomes) for CBTs, including CPT.

In collaboration with the Minneapolis VA, investigators at two National Center Divisions are testing an implementation toolkit and facilitation to increase use EBPs in VA PTSD clinics. This project leverages findings from a prior study on organizational factors that contribute to wider use of EBPs. A new multisite trial will test whether a tailored set of implementation strategies increases the use of PE within the military health system above and beyond the impact of standard provider training. This mixed-methods study will engage stakeholders at various levels and then match implementation strategies to site-specific barriers and facilitators. National Center staff are also supporting and helping to evaluate VA’s efforts to implement measurement-based care (MBC).

Other Important Research
A database is in the process of being developed to house and organize national patient level data regarding PTSD assessment and treatment characteristics. This “at-your-fingertips” database will provide specific and critical information about VA delivery of PTSD care that will quickly orient researchers about important gaps in knowledge and critical next questions to investigate regarding PTSD care.

Appendix B: Fiscal Year 2018 Research Narrative

Evaluation Division
The Evaluation Division in West Haven, Connecticut, supports the National Center’s mission through a programmatic link with the VA’s Northeast Program Evaluation Center (NEPEC). NEPEC has broad responsibilities within the VA Office of Mental Health and Suicide Prevention (OMHSP) to evaluate their treatment programs, including those for specialized treatment of PTSD. Although NEPEC is primarily engaged in evaluation research, it is also works on independent research projects related to the treatment of PTSD.
(Evaluation Division, continued)

Treatment Efficiency, Effectiveness, and Engagement
NEPEC has continued to monitor and assess PTSD treatment at VA. The monitoring includes both residential and outpatient specialty treatment programs, as well as PTSD treatment by trained providers not working within one of the PTSD specialty programs. The Evaluation Division via NEPEC also monitors efforts to improve psychotropic medication prescribing practices at the Veterans Health Administration (VHA). Two of the measures in this initiative are the use of antipsychotics to treat PTSD and the use of benzodiazepines without an appropriate diagnosis or medical indication.

The Clay Hunt Suicide Prevention Act of 2016 required that VA employ an outside independent evaluator to determine the effectiveness, cost effectiveness and satisfaction with VA mental health programs. Evaluation Division staff served as the primary liaison to the Clay Hunt evaluation team, providing data, methodological consultation and contextual interpretation for findings of the evaluation studies. The first annual report of these findings concluded that both outpatient specialized PTSD care and residential PTSD services are effective at reducing symptoms and improving functioning in the first 90 days of treatment, are cost effective, and that Veterans are largely satisfied with services. The evaluation studies will continue annually, with a more in-depth look at the role of concurrent mental health treatment and comorbidity a focus of evaluation in the coming year.

The Evaluation Division continues research on PTSD health services research, pain management, and the role of pain in the treatment of PTSD, as well as on sex differences in the health of returning Veterans. Data collection for a study of the implementation of two EBPs—PE and CPT—in 38 VA residential treatment programs (RTPs) for PTSD has been completed. Findings continue to be published on provider perspectives on perceived effective residential treatment ingredients, provider perceptions of dissuading factors to the use of PE and CPT, and changes in implementation of PE and CPT over time.

The Evaluation Division has a number of investigators using administrative data to explore treatment patterns and outcomes of PTSD care. Studies of medication use for the treatment of PTSD, as well as on correlates of self-reported PTSD symptom severity scores over time, have been published. During FY 2019, the Evaluation Division will further examine the role of pain in specialized PTSD treatment and in the treatment of comorbid PTSD and pain, and will continue publishing results from the Survey of Returning Veterans (SERV) interviews.

Care Delivery, Models of Care, and System Factors
The MBC in Mental Health Initiative, which was formally launched by OMHSP in June 2016, completed its second year of work. As part of Phase II of the Initiative, every intensive substance abuse outpatient program and every RTP was required to implement MBC. Two Evaluation Division staff are supporting the initial pilot program evaluation; members of the Executive Division and the Dissemination and Training Division are involved in the senior leadership of the Initiative. Additional investigators from within the Center are closely involved in the evaluation study itself, as well as in the Communications, Education and Training, and Coaching work groups. The National Center investigators from the Dissemination and Training Division secured a contract with the RAND Corporation to perform in-depth interviews with MBC project directors, frontline provider-Veteran dyads, and individual providers to better understand their experiences with MBC, and those data have been collected and are currently being analyzed. As the Initiative moves into its third year, NCPTSD members will continue to be active participants as investigators and as Initiative leaders.

The national Psychotropic Drug Safety Initiative has entered its fifth year and has been tracking data on changes in practice in prescribing for PTSD, seeing a continued drop in the use of benzodiazepines among Veterans with PTSD. The Evaluation Division continues its work with technical advisors at the PTSD Mentoring Program and at the OMHSP to provide technical assistance to this Initiative. The Division also continues to respond to requests from specialized programs and staff in the field on policy, operations, handbook implementation, and the provision of evidence-based practices.

Other Important Research
Recruitment has finished for the SERV study, which is a repeated panel study of gender differences in psychiatric status and functioning among Operation Enduring Freedom, Operation Iraqi Freedom, and Operation New Dawn Veterans. SERV recruited 850 participants who were interviewed at three-month intervals for at least a year; a sizeable subset continued interviewing for up to three years. Over 40% of the sample is women. Follow-up rates are 80% - 85%. Analyses in a number of areas have been undertaken, with seven manuscripts published, in press or under review. The Evaluation Division is looking for investigators interested in analyzing the SERV data, or in leveraging the SERV sample in add-on or other primary data collection studies. Papers have been published on military sexual trauma (MST) and PTSD as they relate to unit cohesion, gender differences in prevalence rates of disorders over time, and characteristics of Veterans endorsing sex addiction items. Other papers and presentations are in progress on insomnia and PTSD symptoms, suicidal ideation and behaviors, and behavioral addictions. SERV data and an add-on study have been used to develop a pornography addiction scale that is currently in testing for psychometric properties; results in international samples are positive.
Executive Division

The Executive Division in White River Junction, Vermont, provides leadership, directs program planning, and promotes collaboration to facilitate optimal functioning of the other Divisions both individually and collectively. The Executive Division specializes in the development and evaluation of innovative and authoritative educational resources, in programs that disseminate and implement best management and clinical practices, and in the use of technologies to reach a broad range of audiences. The Executive Division also oversees the administration of VA’s National PTSD Brain Bank. The Executive Division does not have a specific research mission; investigators are involved in independent and collaborative research in a number of domains such as treatment outcome research, shared decision-making, and biological research.

Biomarkers

Dr. Matthew Friedman, Senior Advisor to the National Center, continued to coordinate the operations of VA’s first National PTSD Brain Bank. The PTSD Brain Bank supports the Presidential Executive Order of August 2012 on deployment health by enabling VA to lead the nation in unique research that will facilitate deeper understanding of the causes and consequences of PTSD, as well as furthering assessment and treatment techniques. Enrollment of potential postmortem donors began in May 2015 with the launch of the PTSD Brain Bank website. Initially, the Brain Bank was a five-part consortium; it has subsequently grown to seven parts, with facilities at six VA Medical Centers (Miami, Florida; Durham, North Carolina; Boston, Massachusetts; San Antonio, Texas; West Haven, Connecticut; and White River Junction, Vermont) and the Uniformed Services University of the Health Sciences. The Clinical Neurosciences Division is the primary data analysis site; please see the Clinical Neurosciences Division narrative for more information about ongoing research endeavors utilizing PTSD Brain Bank tissue.

As of the end of FY 2018, the Brain Bank had 218 PTSD and comparison frozen hemispheres (roughly divided in thirds from donors with PTSD, donors with major depression, and healthy controls). In addition, the Brain Bank has 22 fixed hemispheres. An additional 90 prospective tissue donors have volunteered to be followed over their lifetimes. The Brain Bank has begun an exciting collaboration with the Lieber Institute for Brain Development that will obtain RNA sequencing and DNA methylation data from ten brain regions from over 300 brains, divided between PTSD, major depressive disorder, and healthy controls.

Executive Division investigators are also involved in biomarkers research utilizing fMRI and EEG. One ongoing project is the first study of the neural correlates of social working memory in PTSD. Investigators are testing whether PTSD is characterized by difficulties maintaining and manipulating social information on a moment-to-moment basis and whether such difficulties are associated with poorer social connection. A separate study is using EEG, eye tracking, and behavioral measures to examine the interaction between emotional processing and attentional functioning in healthy adult participants and trauma-exposed individuals with and without PTSD.

PTSD and Suicide

Executive Division researchers continue to advance the new priority area of PTSD and suicide through collaborations with the National Center for Patient Safety (NCPS), OMHSP, and the Center of Excellence for Prevention of Suicide (COE). Pilot work sponsored by NCPS has led to the development of two large-data oriented grant proposals to VA and DoD, the most recent of which seeks to evaluate the effect of evidence-based PTSD treatments on reduction in death by suicide. An ongoing collaboration with OMHSP validated a prior finding about high-risk periods for suicide following psychiatric discharge. These findings have supported current pilot work in high-risk populations at the White River Junction VA. Ongoing work with the COE evaluates potential misclassification in suicide outcomes. Finally, a separate study is using semantic analysis of clinical note text to evaluate ruptures in therapeutic alliance preceding death by suicide in a VA PTSD treatment population.

Treatment Efficiency, Effectiveness, and Engagement

The Executive Division has a long history of participation in VA’s CSP. During FY 2018, enrollment for CSP #591, a groundbreaking study comparing PE and CPT at 17 VA facilities across the country, was completed. The investigators enrolled 916 participants, more than the 900 that were anticipated. Data collection is projected to end in the 2nd quarter of FY 2019. Findings will help VA leadership, clinicians, and Veterans make informed choices about the delivery of PTSD care in VA, and will also be broadly relevant to the scientific and clinical communities outside VA.

The National Center for PTSD previously developed AboutFace, a public awareness campaign to help Veterans recognize PTSD and motivate them to seek best practice treatment. In FY 2018, investigators launched a project in which they will examine the impact of AboutFace on engagement in and completion of evidence-based treatment among Veterans with PTSD. They will also examine the impact of AboutFace on stigma and attitudes toward mental health services.

Investigators continue to focus on treatments for conditions that frequently co-occur with PTSD and to examine novel treatments for PTSD. Data collection for a trial comparing two psychotherapies for comorbid AUD and PTSD (PE and Seeking Safety) was completed in December 2017. Primary outcome analyses are underway. Recruitment for a trial that is evaluating the combination of topiramate and PE for co-
occurring PTSD and AUD is ongoing. Investigators continue collaborations with the PTSD specialty clinics and with the residential PTSD/substance use treatment program at the San Diego VA to develop ways to use clinical data for research. An ongoing pilot study is investigating the safety and efficacy of a novel form of synchronized transcranial magnetic stimulation for PTSD with comorbid depression; results are expected in FY 2019. The first study of cannabidiol-enhanced PE in Veterans was funded in FY 2018 and will launch in FY 2019. Lastly, a trial to evaluate a brief protocol to reduce guilt and shame related to a traumatic event among Veterans of Iraq and Afghanistan is midway through recruitment.

Care Delivery, Models of Care, and System Factors
The Executive Division is working on several initiatives aimed at assessing models of care and at improving evidence-based practice. Investigators continue to analyze data and publish results from a national survey that assessed the treatment needs and preferences of Veterans and non-Veterans with PTSD symptoms. Results of this survey informed the development of the first publicly available online treatment decision aid for PTSD, which was released to the National Center website in March 2017. The PTSD Treatment Decision Aid is interactive and enables users to identify preferences among treatment options and print that information to share with their provider. Current work focuses on evaluating patient preferences for evidence-based PTSD treatments and investigating how different methods of presenting treatment information can impact these preferences.

Executive Division investigators continue to examine the impact of facilitation and an academic detailing intervention, in which a pharmacist and psychologist reach out directly to VA clinicians in rural clinics, to improve PTSD treatment practices throughout VA New England Healthcare System. In a new initiative, investigators expanded their intervention to rural facilities outside of New England to share guideline-recommended practices for PTSD. Special emphasis was placed on unique methods to reduce benzodiazepine prescribing through a Direct-to-Consumer educational outreach approach. Additionally, innovative natural language processing methods are being used to identify rural sites across the country that are low in delivery of EBPs.

In addition to projects aimed at improving clinical practices, investigators are continuing to assess the state of VA care for PTSD. Ongoing work applies novel informatics and operational methods to medical and administrative data in order to understand multiple dimensions of quality of PTSD care within VA. In FY 2018, investigators determined the longitudinal use of EBPs and evidence-based antidepressants (EBAs; fluoxetine, sertraline, paroxetine, and venlafaxine) over the 10-year period of observation. With regards to uptake of EBPs, there was a steady increase in the use of PE and CPT over the 10-year period but little change in the use of EBAs. Planned projects include development of quality standards for EBP and EBA receipt that are reflective of improvement in PTSD symptoms, and to use these standards to establish predictors of the receipt of effective and timely PTSD treatment.

DSM-5
In collaboration with the Behavioral Science Division, the Executive Division is leading a study to provide further validation of the PC-PTSD-5, which is currently used across VA for mandatory PTSD screening. Although initial validation has been completed, the ongoing study, which uses the CAPS-5 as the criterion index, will provide more definitive information regarding the most appropriate cutoff scores and will allow investigation of the screen’s ability to detect PTSD in key subgroups such as women. Data collection will be completed by the end of FY 2018.

Pacific Islands Division
The Pacific Islands Division in Honolulu, Hawaii, was created to advance PTSD work in the Pacific Rim; to focus on improving access to care by increasing understanding of cultural attitudes and the bases of racial and ethnic disparities in treatment; and to evaluate the use of advanced technology, such as telemedicine, to reach out to Veterans who are otherwise unable to access adequate care.

Treatment Efficiency, Effectiveness, and Engagement
Three major projects are aimed at evaluating different methods of delivering PTSD treatment. Investigators are in the dissemination phase of a large trial that examines Veterans’ preferences for and the clinical efficacy of three modalities for the provision of PE: two involving technology and one involving in-home visits to Veterans. A second trial that compares different treatments for in-home delivery of a couples-based intervention for PTSD was recently launched; this study examines the clinical efficacy of Cognitive-Behavioral Conjoint Therapy for PTSD, and compares home-based care to traditional office-based care. A new trial in collaboration with the Dissemination and Training Division is looking at home-based STAIR treatment for women Veterans who have experienced MST. Lastly, an additional collaboration involves a multi-site trial comparing standard PE with PE incorporating a partner.
Other Important Research
Several ongoing studies examine the prevalence of PTSD, response to treatment, and presence of related mental health comorbidities in ethnic minority populations. These studies identify unique risk and resilience correlates of PTSD among ethnically and racially diverse Veterans, and the effects of those correlates on Veterans’ response to evidence-based PTSD treatments.

Researchers continue a study initiated in FY 2017 that uses data from the Honolulu Asian-Aging project to look at the effects of military service combat exposure in particular on late-life dementia, as well as on marital and family structures, mental health, and physical health among Japanese-American men. An ongoing project conducted in conjunction with the Military Family Research Institute at Purdue University examines sociocultural and community influences on mental health decision-making among male and female African American, Latino, Asian American and white Veterans who are starting PTSD care in a VA mental health clinic. This mixed-methods study uses qualitative phone interviews, follow-up surveys, and census information. Part 1 of the interview examines who in their social networks veterans talk to about mental health problems and treatment, how much they value that input, and why. Other parts of the interview and the follow-up survey examine experiences with and conceptualization of PTSD, treatment, and treatment providers. Additional projects include collaborations on national qualitative study examining drop-out from EBPs with investigators from the Women’s Health Sciences Division and Minneapolis Health Services Research & Development Center of Innovation, and a project developing a statistical methodology that will allow for estimation of individual factor contributions in observational studies where models include functional data as either an outcome or as one of a large number of covariates.

Women’s Health Sciences Division
The Women’s Health Sciences Division in Boston, Massachusetts, specializes in the study of women Veterans and non-Veterans, with a particular focus on understanding gender differences in trauma exposure and posttrauma psychopathology.

Biomarkers
Biomarkers work at the Women’s Health Sciences Division includes studies aimed at explaining the basic biological processes underlying PTSD with particular relevance to women: a study examining the role of neurobiological and psychosocial factors that impact negative pregnancy outcomes among women with PTSD; data analysis on a study of sex hormones and derivatives associated with decreased retention of extinction learning across the menstrual cycle in women with PTSD; a series of studies of the gene-environment interplay in the comorbidity of PTSD and eating disorders; and a study of GABA-ergic neuroprotective steroids in men and in women across the menstrual cycle. Recently published work using plasma measures has demonstrated that women with PTSD are at heightened risk for decreased conversion of progesterone into its anxiolytic metabolites.

Studies investigating the role of biomarkers in intervention efforts include a study investigating whether a specific electrophysiological response pattern to a series of loud tones is predictive of selective serotonin reuptake inhibitor (SSRI) response among men and women, in an effort to identify individuals who are likely to respond to SSRI treatment. The Women’s Health Sciences Division is also working on two studies investigating the role of progressive exercise training, to determine whether it affects participants’ capacity for releasing shared neurohormones to help reduce or better manage chronic pain (including fibromyalgia) and PTSD symptoms.

PTSD and Suicide
Ongoing work in the area of suicide includes a large-scale epidemiologic machine learning study of suicide. Specifically, using data from the entire population of Denmark from 1995-2015 investigators are applying machine learning techniques to develop prediction models for suicide attempt and death from suicide. Analyses will be conducted on the full population, as well as among subgroups including all of those diagnosed with PTSD and women diagnosed with PTSD.

Treatment Efficiency, Effectiveness and Engagement
Recent efforts focused on treatment engagement identified that Veterans who were unwilling to engage in PTSD or depression treatment were willing to seek treatment for sleep difficulties, suggesting this may be an important gateway to engaging some Veterans into treatment. Other work has examined treatment engagement of subpopulations of interest, including an examination of PTSD treatment seeking experiences in a sample of discrimination-based trauma-exposed lesbian, gay, bisexual, and transgender Veterans.

Several intervention studies are examining more efficient treatment formats for CPT. With support from the South Texas Research Organizational Network Guiding Studies on Trauma and Resilience (STRONG STAR) Consortium, investigators are continuing to analyze data from a recently completed study comparing the relative effectiveness of CPT delivered in an individual format with that delivered in a group format. Also, through STRONG STAR, staff are investigating a variable-length CPT protocol testing the efficacy of the intervention when
(Women’s Health Sciences Division, continued)

treatment end is determined by patient progress. Another trial will test the efficacy of CPT delivered in an intensive outpatient format with active-duty military Servicemembers.

In terms of treatment effectiveness, investigators are working to improve adherence to existing PTSD treatments. A current study is exploring Veteran and provider perspectives on reasons for dropout from both CPT and PE to develop an intervention aimed at increasing rates of completion for these treatments.

Other intervention studies focused on traumatized populations include an open trial to test the effectiveness of a therapist-assisted self-management intervention intended to increase self-efficacy and facilitate greater community engagement following a successful course of PTSD treatment. Another ongoing intervention examines the effectiveness and fit of a transdiagnostic treatment, the Unified Protocol, for trauma-exposed Veterans with co-occurring diagnoses.

The Women’s Health Sciences Division is also focused on intervention research among those who have not necessarily been diagnosed with PTSD, including examination of the effectiveness of a national network of peer-facilitated psychoeducation and support groups for women Veterans who want to improve their well-being, titled WoVeN: The Women Veterans Network.

Care Delivery, Models of Care and System Factors

The Division’s focus on care delivery within VHA emphasizes care for conditions with particular relevance to women Veterans. These include a mixed-methods investigation of Veterans’ experiences with and preferences for VHA’s universal MST screening program. Two additional studies are investigating VHA health care use related to eating disorders, in a nationally representative sample of male and female Veterans and a large cohort of post-9/11 male and female Veterans. These investigations will also look to identify barriers to mental health care use, generally and specific to eating disorders.

Additional work has focused on understanding patterns of service use among post-9/11 Veterans. The Veterans Metric Initiative is a large-scale longitudinal study investigating newly separated Servicemembers’ reintegration experiences and use of transition programs, services, and supports. Recent analyses highlight several key differences between the post-military readjustment of male and female Veterans, including female Veterans’ greater likelihood of experiencing mental health concerns and seeking health care within the first year after separation.

Investigators also continue to analyze data from a study of the effects of deployment stressors and resulting mental health conditions on Veterans’ quality of life and health-care use. A key focus of current analyses is the relationship between Veterans’ functioning and their service use, with findings suggesting that functional impairments may serve as a facilitator of treatment seeking for women whereas it may impede treatment seeking for men.

Implementation

Investigators within the Women’s Health Sciences Division are conducting implementation research focused on identifying and disseminating best practices for intimate partner violence (IPV) identification, assessment, treatment, and the targeting of health services within the VHA context. In terms of screening, investigators conducted a national qualitative evaluation of early and late adopting VA Medical Centers to identify best clinical practices for IPV screening and response practices, as well as successful implementation strategies to be used to scale-up these practices throughout VA primary care. A complementary study evaluated the reach, adoption, and effectiveness of a risk assessment screening tool for women who experience IPV and found that implementation of the tool is associated with increased access to psychosocial services. These findings are being adopted within VHA in a planned randomized program evaluation to assess the implementation impact and effectiveness of IPV screening programs.

In terms of implementation of interventions associated with IPV, investigators recently began a multi-site effectiveness-implementation clinical trial of a brief counseling intervention for women who are experiencing violence in their intimate relationships. This study incorporates a hybrid methodology to inform both the effectiveness of the intervention and expansion of the intervention throughout VA.

Other Important Research

Within the Women’s Health Sciences Division, research beyond these key operational priorities generally focuses on investigations of key, understudied gender differences or better characterizing the experiences and health burden experienced by women who have been exposed to trauma. As part of improving the understanding gender differences in stress, trauma, and related psychiatric outcomes, the Longitudinal Investigation of Gender, Health, and Trauma study is a national survey of Veterans, focusing on more clearly delineating the impact of trauma and community violence on mental, physical, and reproductive health among both women and men.

Investigators are also seeking to pioneer scientific inquiry in the area of head injury in women suffering from PTSD secondary to IPV to understand the interactive biological and psychological mechanisms that underlie comorbid PTSD and TBI. A key aim is to begin to develop multimodal treatments for comorbid PTSD and TBI that investigators would hypothesize to be more effective than current, single modal...
strategies. Investigators will be able to examine sex differences across domains of measurement by comparing this sample with comparable male samples.

The health of older women Veterans is another area of focus. One study is examining the impact of military and other lifetime stress exposures and mental health results, with a focus on PTSD, on later life health, functioning, and disability in Vietnam-era women Veterans. In collaboration with investigators in the Behavioral Science Division, a follow-up study of female and male Vietnam-era Veterans is examining predictors of mortality, as well as changes in physical and mental health-related well-being over time.
### Appendix C: Fiscal Year 2018 Funding

#### VA Cooperative Studies Program (CSP)

<table>
<thead>
<tr>
<th>Principal Investigator</th>
<th>Research Title</th>
<th>Years</th>
<th>Current Funding</th>
<th>Total Funding</th>
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<td>Krystal</td>
<td>CSP #2016: Adaptive Clinical Trial for Insomnia in Veterans with PTSD (ACTIVe-PTSD)</td>
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<td>Schnurr, Chard, &amp; Ruzek</td>
<td>CSP #591: Comparative Effectiveness Research in Veterans with PTSD (CERV-PTSD)</td>
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#### Other VA Sources

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<th>Years</th>
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<td>Averill</td>
<td>Intrinsic Functional Connectivity and Cognition in Posttraumatic Stress Disorder</td>
<td>VISN 1 (CDA)</td>
<td>2016-2018</td>
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<td>Averill</td>
<td>Structural and Functional Correlates of Suicidality in Veterans with PTSD</td>
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<td>Bernardy</td>
<td>Identifying Rural Areas of Low Evidence-based PTSD Care Delivery and Exploring the Feasibility of Intervening with Virtual Facilitation and e-Detailing</td>
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<td>2019-2020</td>
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<td>Bernardy</td>
<td>Measuring the Impact of the Use of Academic Detailing to Improve PTSD Treatment</td>
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<td>Bovin &amp; Schnurr</td>
<td>Validation of the PTSD Primary Care Screen</td>
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<td>Carlson</td>
<td>Pilot Study of Standalone and Peer Supported Online Problem Solving Program in Veterans with Untreated Mental Health Problems</td>
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<td>Cloitre</td>
<td>Office of Rural Health webSTAIR Program</td>
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<td>Cloitre</td>
<td>Connecting Women to Care: Home-based Psychotherapy for Women with MST Living in Rural Areas</td>
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<td>Colvonen</td>
<td>The Impact of Integrated CBT-I and PE on Sleep and PTSD Outcomes</td>
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<td>Grubaugh &amp; Hamblen</td>
<td>A Randomized Controlled Trial of AboutFace: A Novel Video Storytelling Resource to Improve Access, Engagement, and Utilization of Mental Health Treatment among Veterans with PTSD</td>
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<td>Hamblen</td>
<td>CBT for PTSD in Veterans with Co-occurring Substance Use Disorders</td>
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<td>Hamilton &amp; Kimerling</td>
<td>Enhancing the Mental and Physical Health of Women Through Engagement and Retention (EMPOWER)</td>
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<td>$830,000</td>
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<td>Heinz</td>
<td>Cognitive Remediation for Alcohol Use Disorder and PTSD</td>
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<td>2014-2019</td>
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## Appendix C: Fiscal Year 2018 Funding

### (Other VA Sources, continued)

<table>
<thead>
<tr>
<th>Principal Investigator</th>
<th>Research Title</th>
<th>Funding Source</th>
<th>Years</th>
<th>Current Funding</th>
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<td>Iverson</td>
<td>Addressing Intimate Partner Violence Among Women Veterans: Evaluating the Impact and Effectiveness of VHA’s Response</td>
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<td>Iverson</td>
<td>Intimate Partner Violence Screening Programs in VHA: Informing Scale-Up and Spread of Best Practices</td>
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<td>Iverson</td>
<td>Presidential Early Career Award for Scientists and Engineers</td>
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<td>Iverson</td>
<td>Recovering from Intimate Partner Violence Through Strengths and Empowerment (RISE): Tailoring and Evaluating a Patient-Centered Counseling Intervention for Women Veterans</td>
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<td>Kachadourian</td>
<td>Mindfulness Treatment for Anger in Veterans with PTSD</td>
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<td>Kachadourian</td>
<td>Using EMA to Assess Aggression Perpetration in Veterans with PTSD and Chronic Pain</td>
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<td>Keane</td>
<td>CAP-Administrative Core*</td>
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<td>Kehle-Forbes</td>
<td>Pilot Test of a Self-Management Program for Completers of Trauma-Focused Therapy</td>
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<td>LED Light Therapy to Improve Cognitive-Psychosocial Function in TBI-PTSD Veterans</td>
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<td>Krystal &amp; Abdallah</td>
<td>CAP-Ketamine for Antidepressant-Resistant PTSD: A Translational Neuroscience, Biomarker-Informed Clinical Trial*</td>
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<td>Kuhn</td>
<td>An RCT of a Primary Care-Based PTSD Intervention: Clinician-Supported PTSD Coach</td>
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<td>Loflin</td>
<td>Cannabidiol as an Adjunctive to Prolonged Exposure for the Treatment of PTSD</td>
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<td>Landes (PI), Rosen (Site PI)</td>
<td>Risk Stratified Enhancements to Clinical Care: Targeting Care for Patients Identified Through Predictive Modeling as being at High Risk for Suicide</td>
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<td>Early Cognitive Impairment as a Function of Alzheimer’s Disease and Trauma</td>
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<td>Logue</td>
<td>Genetic and Epigenetic Biomarkers of PTSD</td>
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<td>McGlinchey (PI), Rasmusson (Site PI)</td>
<td>VA Center of Excellence: Translational Research Center for TBI and Stress Disorders</td>
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<td>Miller</td>
<td>Magnetic Resonance Spectroscopy and Genetic Analysis of Oxidative Stress in OEF/OIF Veterans with PTSD and TBI</td>
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<td>An Integrative Technology Approach to Home-based Conjoint Therapy for PTSD</td>
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<td>Novel Interventions for Gulf War Veterans’ Illnesses</td>
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## Principal Investigator

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<tr>
<th>Principal Investigator</th>
<th>Research Title</th>
<th>Funding Source</th>
<th>Years</th>
<th>Current Funding</th>
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<td>Petrakis</td>
<td>Optimal Treatment of Veterans with PTSD and Comorbid Opiate Use Disorder (OUD)</td>
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<td>VISN 1 Strategic Initiative to Expand Education and Research</td>
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<td>Pineles</td>
<td>An Electrophysiological Predictor of SSRI Response in Veterans with PTSD</td>
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<td>Pless Kaiser</td>
<td>Improving Psychosocial Functioning in Older Veterans with PTSD</td>
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<td>Neurobiological and Psychological Benefits of Exercise in Chronic Pain and PTSD</td>
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<td>Neurobiological and Psychological Benefits of Fibromyalgia and PTSD</td>
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<td>Improving Care for PTSD</td>
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<td>NCPS</td>
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<td>Group CBT for Chronic PTSD: A Randomized Clinical Trial</td>
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<td>Sullivan</td>
<td>Neural Metabolic Stress in mTBI and PTSD</td>
<td>CSR&amp;D (CDA)</td>
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<td>$170,127</td>
<td>$877,915</td>
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<td>Thompson-Hollands</td>
<td>An Adjunctive Family Intervention for Individual PTSD Treatment</td>
<td>CSR&amp;D (CDA)</td>
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<td>Wolf</td>
<td>Presidential Early Career Awards for Scientists and Engineers Funding</td>
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<td>Wolf</td>
<td>PTSD-Related Accelerated Aging in DNA Methylation and Risk for Metabolic Syndrome</td>
<td>CSR&amp;D</td>
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BLR&D Biomedical Laboratory Research & Development Service; CDA Career Development Award; CSR&D Clinical Science Research and Development Service; DoD Department of Defense; HSR&D Health Services Research and Development Service; NCPS National Center for Patient Safety; ORH Office of Rural Health; PRIME Pain Research, Informatics, Multimorbidities, and Education; QUERI Quality Enhancement Research Initiative; RR&D Rehabilitation Research and Development Service; VISN Veterans Integrated Service Network; VA Veterans Administration

*Sub-award within the total $21 million CAP award to VA; total CAPS award including DoD funds = $42,000,000.
**Indicates FY2018 funds allocated to funded site PI.
***No direct funding provided to NCPTSD but in-kind support provided.

## National Institutes of Health (NIH)

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<tr>
<th>Principal Investigator</th>
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<td>Abdallah</td>
<td>Examining the Effect of Ketamine on Glutamate/Glutamine Cycling</td>
<td>NIMH</td>
<td>2013-2019</td>
<td>$168,080</td>
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<td>Abdallah</td>
<td>Glial and Synaptic Functions in Major Depression</td>
<td>NIMH</td>
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<td>Adams</td>
<td>Enhancement of Extinction Learning Using Transcranial Direct Current Stimulation</td>
<td>NIMH (K)</td>
<td>2017-2022</td>
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<td>Agarwal (PI), Gelernter (Site PI)</td>
<td>Psychiatric Genomics Consortium: Find Actionable Variation</td>
<td>PGC via NIH et al.</td>
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<td>Carlson</td>
<td>Development of a Risk Factor Screen for Mental Health Problems after Sudden Illness or Injury</td>
<td>NIMHD</td>
<td>2017-2021</td>
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<td>Clouston &amp; Pietrzak</td>
<td>A Life Course Approach to Integrating Trauma and Cognitive Aging: A Cohort of 9/11 Responders</td>
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<td>Cosgrove</td>
<td>Imaging Molecular Mechanisms of Tobacco Smoking Withdrawal</td>
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<td>Cosgrove &amp; Pietrzak</td>
<td>Imaging Microglial Activation in PTSD using PET</td>
<td>NIMH</td>
<td>2017-2022</td>
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<td>Davis</td>
<td>Dysregulation in mGlu5 as a Marker of BPD and Suicide-related Endophenotypes</td>
<td>NIMH (K)</td>
<td>2018-2023</td>
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<td>Driesen &amp; Krystal</td>
<td>Assessing the Relationship Between Cortical Oxidative Metabolism and Working Deficits Under NMDA Receptor Blockade</td>
<td>NIMH</td>
<td>2017-2019</td>
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<td>Role of GABA Interneurons in Rapid Antidepressant Actions of NMDA Receptor Blockade</td>
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<td>$510,206</td>
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<td>Synaptic Mechanisms Underlying the Rapid Antidepressant Actions of Scopolamine</td>
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<td>$2,164,744</td>
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<td>Esterlis &amp; Pietrzak</td>
<td>Depression and Accelerated Brain Aging: A PET Imaging Study</td>
<td>NIMH</td>
<td>2018-2023</td>
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<td>Esterlis</td>
<td>Glutamate Neurotransmission in Bipolar Depression and Mania</td>
<td>NIMH</td>
<td>2017-2019</td>
<td>$150,000</td>
<td>$460,625</td>
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<td>In Vivo Imaging of a Neural Marker of Suicidal Behavior in Bipolar Disorder</td>
<td>NIMH</td>
<td>2018-2023</td>
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<td>Esterlis</td>
<td>PET-fMRI Study of Glutamate and Frontal Function in Bi- and Uni-polar Depression</td>
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<td>2015-2020</td>
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<td>Esterlis</td>
<td>Role of Neuroinflammation in the Pathophysiology of Bipolar Depression</td>
<td>NIMH</td>
<td>2017-2019</td>
<td>$149,866</td>
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<td>Fichtenholtz (PI), Sippel (Site PI)</td>
<td>Neural Mechanisms of Emotional Vigilance in Posttraumatic Stress Disorder (PTSD)</td>
<td>NIH/NH-INBRE</td>
<td>2018-2020</td>
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<td>Gelernter</td>
<td>Genetics of Opioid Dependence</td>
<td>NIDA</td>
<td>2013-2018</td>
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<td>Gelernter</td>
<td>PTSD Genomewide: Genetics, Expression, and Epigenetics</td>
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<td>2019-2024</td>
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<td>Gradus</td>
<td>Characterizing Trauma Outcomes: From Pre-trauma Risk to Post-trauma Sequelae</td>
<td>NIMH</td>
<td>2017-2021</td>
<td>$319,091</td>
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<td>Gradus</td>
<td>Risk Profiles for Suicidal Behavior in the General Population</td>
<td>NIMH</td>
<td>2016-2020</td>
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<td>Gutner</td>
<td>Effectiveness of a Unified Transdiagnostic Treatment in Routine Clinical Care</td>
<td>NIMH (K)</td>
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<td>Han &amp; Gelernter</td>
<td>Fine Mapping a Gene Sub-network Underlying Alcohol Dependence</td>
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<td>Harpaz-Rotem &amp; Schiller</td>
<td>Fear Learning and Reconsolidation After Trauma Exposure: A Computational Approach</td>
<td>NIMH</td>
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<td>Harpaz-Rotem &amp; Hampson</td>
<td>Neurofeedback of Amygdala Activity for PTSD</td>
<td>NIMH</td>
<td>2018-2020</td>
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<td>Keane</td>
<td>Postdoctoral Training in PTSD</td>
<td>NIMH</td>
<td>2016-2020</td>
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<td>Lee &amp; Heinz</td>
<td>Mobile Cognitive Control Training for the Treatment of Alcohol Use Disorder and PTSD</td>
<td>NIAAA</td>
<td>2017-2018</td>
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<td>Malison &amp; Gelernter</td>
<td>Identifying Methamphetamine Risk Variants by Extreme Phenotype Exome Sequencing</td>
<td>NIDA</td>
<td>2015-2020</td>
<td>$600,000</td>
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## Appendix C: Fiscal Year 2018 Funding

### (National Institutes of Health, continued)

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<tr>
<th>Principal Investigator</th>
<th>Research Title</th>
<th>Funding Source</th>
<th>Years</th>
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<th>Total Funding</th>
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<tr>
<td>McKee &amp; Cosgrove</td>
<td>Translational Center to Develop Gender Sensitive Treatments for Tobacco Smoking</td>
<td>NIDA</td>
<td>2012-2018</td>
<td>$0</td>
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<td>Morey (PI), Logue (Site PI)</td>
<td>Trauma and Genomics Modulate Brain Structure across Common Psychiatric Disorders</td>
<td>NIMH</td>
<td>2017-2021</td>
<td>$58,392**</td>
<td>$2,210,556</td>
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<td>Morris &amp; Cosgrove</td>
<td>Imaging Sex Differences in Smoking-Induced Dopamine Release via Novel PET Methods</td>
<td>NIDA</td>
<td>2015-2020</td>
<td>$439,638</td>
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<td>Nillni</td>
<td>PTSD-Related Neurobiological Mediators of Negative Pregnancy Outcomes</td>
<td>NICHD (K)</td>
<td>2017-2021</td>
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<td>Pless Kaiser &amp; Niles</td>
<td>A Randomized Pilot Trial of Tai Chi Compared to Wellness Education for Older Veterans</td>
<td>NIA</td>
<td>2018-2019</td>
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<td>Ralevski</td>
<td>Effects of Allopregnanolone on Stress-Induced Craving</td>
<td>NIAAA</td>
<td>2017-2019</td>
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<td>Scioli-Salter</td>
<td>Neurobiological Mediators of Self-regulatory and Reward-based Motivational Predictors of Exercise Maintenance in Chronic Pain and PTSD</td>
<td>NCCIH</td>
<td>2018-2021</td>
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<td>Written Exposure Therapy for PTSD: A Randomized Noninferiority Trial</td>
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<td>Smith &amp; Logue</td>
<td>The Impact of Traumatic Stress on the Methylome: Implications for PTSD</td>
<td>NIMH</td>
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<td>Smith</td>
<td>Health Mechanisms and Outcomes in an Epidemiological Cohort of Vietnam Era Women Veterans</td>
<td>NIA</td>
<td>2016-2019</td>
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<td>Taft</td>
<td>Trauma-Focused Partner Violence Intervention</td>
<td>NIH/Boston University CTSI</td>
<td>2017-2018</td>
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<td>Wiltsey Stirman &amp; Monson</td>
<td>Improving and Sustaining CPT for PTSD in Mental Health Systems</td>
<td>NIMH</td>
<td>2016-2019</td>
<td>$584,763</td>
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<td>Wiltsey Stirman (PI), Gutner (Site PI)</td>
<td>Leveraging Routine Clinical Materials and Mobile Technology to Assess CBT Quality</td>
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<td>$681,178</td>
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<td>Wolf</td>
<td>Administrative Supplement to Traumatic Stress and Accelerated Aging in DNA Methylation</td>
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<td>Wolf</td>
<td>Traumatic Stress and Accelerated Aging in DNA Methylation</td>
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<td>Zimmerman</td>
<td>Participatory System Dynamics for Evidence-based Addiction and Mental Healthcare</td>
<td>NIDA</td>
<td>2016-2018</td>
<td>$221,005</td>
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**Indicates FY2018 funds allocated to funded site PI.
***No direct funding provided to NCPTSD but in-kind support provided.
### Department of Defense (DoD)

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<td>Chard &amp; Marx</td>
<td>Psychometric Evaluation of the Clinician Administered PTSD Scale for DSM-5 (CAPS-5) and the PTSD Symptom Scale Interview for DSM-5 (PSSI-5) in an Active Duty and Military Veteran Sample</td>
<td>2018-2020</td>
<td>$1,067,635</td>
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<td>McLean &amp; Rosen</td>
<td>Targeted Strategies to Accelerate Evidence-based Psychotherapies Implementation in Military Settings</td>
<td>2017-2021</td>
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<td>$8,265,060</td>
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<td>McLean</td>
<td>Web-PE: Internet-delivered Prolonged Exposure Therapy for PTSD</td>
<td>2014-2018</td>
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<td>Norman</td>
<td>Trauma Informed Guilt Reduction (TrIGR) Intervention</td>
<td>2015-2019</td>
<td>$503,040</td>
<td>$1,989,870</td>
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<td>Rosen</td>
<td>PTSD Practitioner Registry: An Innovative Tracking, Dissemination and Support Tool for Providers in Military and Nonmilitary Settings</td>
<td>2014-2018</td>
<td>$408,350</td>
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<td>Shiner</td>
<td>Comparative Effectiveness of Psychotropic Medications for PTSD in Clinical Practice</td>
<td>2017-2020</td>
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<td>Sloan</td>
<td>Brief Treatment for PTSD: Enhancing Treatment Engagement and Retention</td>
<td>2015-2019</td>
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<td>Strength at Home Couples Program to Prevent Military Partner Violence</td>
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<td>Wachen</td>
<td>Massed Cognitive Processing Therapy for Combat-related PTSD</td>
<td>2017-2020</td>
<td>$745,216</td>
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<td>White &amp; Mackintosh</td>
<td>Brain Injury and Military Service as Factors for Alzheimer’s Disease and Other Conditions</td>
<td>2015-2018</td>
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<td>Woodward</td>
<td>Can a Canine Companion Modify Cardiac Autonomic Reactivity and Tone in PTSD</td>
<td>2014-2018</td>
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### Other Non-VA Sources

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<td>Characterizing the Neuronal Mechanisms Behind Cognitive and Motivational Deficits in Psychiatric Disorders</td>
<td>Blackthorn Therapeutics</td>
<td>2016-2018</td>
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<td>Averill</td>
<td>Brain Connectivity Networks and Predictors of Rapid Improvement in Suicidal Ideation Among Veterans</td>
<td>American Foundation for Suicide Prevention</td>
<td>2018-2020</td>
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<td>Averill</td>
<td>Connectivity Networks Underlying Ketamine-Induced Improvements in Suicidal Ideation</td>
<td>Robert E. Leet and Clara Guthrie Patterson Trust for Mentored Clinical Research Award</td>
<td>2017-2019</td>
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<td>Averill</td>
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<td>Brain and Behavior Research Foundation</td>
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<td>Cosgrove</td>
<td>Imaging Glucocorticoid and Neuronal Dysfunction in PTSD</td>
<td>Brain and Behavior Research Foundation</td>
<td>2017-2018</td>
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<td>Cosgrove</td>
<td>The Dopamine Signature of Cannabis: Imaging Sex Differences</td>
<td>Naratil Pioneer Award</td>
<td>2017-2018</td>
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<td>Duman</td>
<td>Behavioral Actions of GLYX-13 in Rodent Models of Cognitive Flexibility</td>
<td>Allergan</td>
<td>2016-2018</td>
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<td>Cellular Mechanisms Underlying the Antidepressant Actions of GLYX013</td>
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<td><strong>Duman</strong></td>
<td>Identification and Characterization of Novel Drug Targets for Depression</td>
<td>Tashio Pharmaceuticals</td>
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<td><strong>Esterlis</strong></td>
<td>In Vivo and Postmortem Study of Synaptic Plasticity</td>
<td>Nancy Taylor Foundation</td>
<td>2015-2018</td>
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<td><strong>Feder &amp; Pietrzak</strong></td>
<td>A Randomized Controlled Trial of Internet CBT for PTSD in WTC Responders</td>
<td>CDC/NIOSH</td>
<td>2016-2019</td>
<td>$499,912</td>
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<td><strong>Feder &amp; Pietrzak</strong></td>
<td>Neuroimaging of Resilience in World Trade Center Responders: A Focus on Emotional Processing, Reward and Social Cognition</td>
<td>CDC/NIOSH</td>
<td>2017-2021</td>
<td>$599,086</td>
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<td><strong>Feder &amp; Pietrzak</strong></td>
<td>Biomarkers of Psychological Risk and Resilience in World Trade Center Responders</td>
<td>CDC/NIOSH</td>
<td>2012-2018</td>
<td>$995,911</td>
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<td>Women Veterans Network (WoVeN)</td>
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<td>$219,051</td>
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<td><strong>Galovski &amp; Street</strong></td>
<td>Women Veterans Network (WoVeN) - Phase 2</td>
<td>Walmart Foundation</td>
<td>2018-2020</td>
<td>$62,011</td>
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<td><strong>Hu &amp; Marx</strong></td>
<td>Mining Audio Cues from PTSD Interviews</td>
<td>MITRE Innovation Award</td>
<td>2016-2019</td>
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<td><strong>Kaye</strong></td>
<td>Circuit of Mechanisms of a Pupillary Biomarker for Stress-Induced Hyperarousal</td>
<td>Brain and Behavior Research Foundation</td>
<td>2019-2021</td>
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<td><strong>Kelmendi</strong></td>
<td>Role of MDMA on Amygdala and Prefrontal Cortex on PTSD</td>
<td>Brain and Behavior Research Foundation</td>
<td>2016-2018</td>
<td>$35,000</td>
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<td><strong>Krystal &amp; Abdallah</strong></td>
<td>Examining the Impact of Rapamycin on Ketamine's Antidepressant Effects</td>
<td>Pfeiffer Foundation</td>
<td>2015-2019</td>
<td>$167,000</td>
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<td><strong>Levy</strong></td>
<td>Decision Making Under Uncertainty Across the Lifespan: Cognitive, Motivational and Neural Bases</td>
<td>NSF</td>
<td>2018-2021</td>
<td>$224,771</td>
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<td><strong>Monson &amp; Wilsey Stirman</strong></td>
<td>Improving and Sustaining Clinician Use of CPT</td>
<td>Canadian Institutes of Health Research</td>
<td>2014-2018</td>
<td>$182,000</td>
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<td><strong>Petrikas</strong></td>
<td>Effects of Progesterone on Stress-induced Craving in PTSD and AUD</td>
<td>Brain and Behavior Research Foundation</td>
<td>2016-2018</td>
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<td><strong>Sanacora</strong></td>
<td>An Open-label Long-term Safety and Efficacy Study of Intranasal Esketamine in Treatment-Resistant Depression (Sustain 2)</td>
<td>Janssen Research &amp; Development</td>
<td>2015-2018</td>
<td>$301,767</td>
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<td><strong>Sanacora</strong></td>
<td>Electroconvulsive Therapy Versus Ketamine for Severe Resistant Depression</td>
<td>PCORI</td>
<td>2017-2021</td>
<td>$0</td>
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<td><strong>Sanacora</strong></td>
<td>Exploring the Role of Gial Mediated Glutamate Clearance in Stress Sensitivity and Resiliency</td>
<td>Brain and Behavior Research Foundation</td>
<td>2015-2018</td>
<td>$0</td>
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<td><strong>Sanacora</strong></td>
<td>Randomized, Double-blind Multicenter, Active-controlled Study to Evaluate the Efficacy, Safety and Tolerability of Intranasal Esketamine Plus an Oral Antidepressant in Elderly Subjects with Treatment Resistant Depression (Transform 3)</td>
<td>Janssen Res &amp; Dev, LLC</td>
<td>2015-2018</td>
<td>$58,811</td>
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<td><strong>Sanacora</strong></td>
<td>Defining the Longitudinal Course, Outcomes, and Treatment Needs of Vulnerable Canadians with Posttraumatic Stress Disorder</td>
<td>Canadian Institutes of Health Research</td>
<td>2015-2022</td>
<td>$340,868**</td>
<td>$2,386,073</td>
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<td><strong>Taft</strong></td>
<td>Implementation of VA Rollout of Strength at Home</td>
<td>Bob Woodruff Foundation</td>
<td>2017-2019</td>
<td>$165,673</td>
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## Projects Pending Funding

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<tr>
<th>Principal Investigator</th>
<th>Research Title</th>
<th>Funding Source</th>
<th>Years</th>
<th>Total Funding</th>
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<tr>
<td><strong>Bovin</strong></td>
<td>From Screening to Treatment: Mapping Access to Care Pathways for Veterans Who Screen Positive for PTSD</td>
<td>VA HSR&amp;D</td>
<td>2019-2020</td>
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<td><strong>Cook</strong></td>
<td>Peer Online Motivational Interviewing for Sexual and Gender Minority Male Survivors</td>
<td>PCORI</td>
<td>2019-2022</td>
<td>$1,416,757</td>
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<td><strong>Daskalakis (PI), Miller (Site PI)</strong></td>
<td>Causal Gene Inference and Functional Genomics in PTSD</td>
<td>NIH NIMH</td>
<td>2019-2024</td>
<td>$263,383</td>
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<td><strong>Feder (PI), Pietrzak (Site PI)</strong></td>
<td>Digital Cognitive-Emotional Training for Depressed WTC Responders: A Randomized Controlled Trial</td>
<td>CDC/NIOSH</td>
<td>2018-2021</td>
<td>$1,490,964</td>
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<td><strong>Galovski &amp; Kehle-Forbes</strong></td>
<td>Balancing Flexibility and Fidelity: Integrating a Case Formulation Approach with Cognitive Processing Therapy for PTSD to Improve Treatment Outcomes for Veterans</td>
<td>VA HSR&amp;D</td>
<td>2018-2022</td>
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<td><strong>Galovski &amp; Street</strong></td>
<td>Women Veterans Network (WoVeN) - Extend Funding</td>
<td>Bob Woodruff Foundation</td>
<td>2019-2020</td>
<td>$152,433</td>
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<td><strong>Galovski &amp; Street</strong></td>
<td>Women Veterans Network (WoVeN) - Train the Trainer Program</td>
<td>Fisher House Newman's Own Award</td>
<td>2018-2019</td>
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<td><strong>Gutner</strong></td>
<td>Increasing Reach of Evidence-Based Psychotherapies in CBOCs: Identifying Needs and Strategies for Scale Out</td>
<td>VA HSR&amp;D</td>
<td>2019-2019</td>
<td>$98,534</td>
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<td><strong>Harpaz-Rotem &amp; Pietrzak</strong></td>
<td>Fear Reversal Learning in Combat-Related PTSD: A Multi-Modal fmRI-PET Approach</td>
<td>VA CSR&amp;D</td>
<td>2018-2023</td>
<td>$1,100,000</td>
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<td><strong>Hayes</strong></td>
<td>Fear Generalization and Hippocampal Subfields in PTSD</td>
<td>Brain and Behavior Foundation</td>
<td>2018-2020</td>
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<td><strong>Hayes</strong></td>
<td>Neuroimaging and Molecular Markers of AD and Neurodegenerative Disease after Concussion</td>
<td>NIH NIA</td>
<td>2018-2023</td>
<td>$1,544,788</td>
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<td><strong>Holtzheimer &amp; Kylie</strong></td>
<td>Understanding the Relationship between Depression and Fatigue in TBI</td>
<td>VA CSR&amp;D</td>
<td>2019-2022</td>
<td>$600,000</td>
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<td><strong>Iverson</strong></td>
<td>Addressing Intimate Partner Violence among Women Veterans: Evaluating the Impact and Effectiveness of VHA's Response</td>
<td>VA HSR&amp;D</td>
<td>2019-2023</td>
<td>$1,097,111</td>
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<td><strong>Kehle-Forbes &amp; Galovski</strong></td>
<td>Evaluation of a Self-Management Program for Completers of Trauma-Focused Therapy</td>
<td>NIH NIMH</td>
<td>2018-2021</td>
<td>$450,000</td>
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<td><strong>Mackintosh</strong></td>
<td>Delivering Anger Management Treatment through a Web-based Intervention: Determining Intervention Efficacy and Impact of Coaching Components</td>
<td>VA RR&amp;D</td>
<td>2019-2023</td>
<td>$1,097,431</td>
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<td><strong>Marx</strong></td>
<td>Decreasing Suicide Risk among Service Members with Posttraumatic Stress</td>
<td>DoD</td>
<td>2019-2021</td>
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<td><strong>Meredith &amp; Sloan</strong></td>
<td>Embedding Written Exposure Therapy into Collaborative Care for PTSD in Primary Care</td>
<td>NIH NIMH</td>
<td>2019-2023</td>
<td>$3,717,747</td>
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<td><strong>Miller, K.</strong></td>
<td>Characterization of Sleep with Trauma Nightmares using Ambulatory Sleep Measurement</td>
<td>VA CSR&amp;D (CDA)</td>
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<td>Miller, M.</td>
<td>Leveraging Precision-Medicine to Enhance the Efficacy of Treatments for Posttraumatic Stress Disorder</td>
<td>Ellison Foundation</td>
<td>2019-2020</td>
<td>$190,000</td>
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<td>Mitchell</td>
<td>Eating Disorders among Veterans: Risk, Resilience, and Service Use</td>
<td>VA HSR&amp;D</td>
<td>2018-2021</td>
<td>$556,818</td>
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<td>Nixon &amp; Galovski</td>
<td>Improved PTSD Treatment Using Case Formulation: A Randomized Trial</td>
<td>National Health and Medical Research Council (Australian Government)</td>
<td>2019-2023</td>
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<td>Petrakis</td>
<td>Kappa Opioid Receptor Antagonist for the Treatment of Alcohol Use Disorder and Comorbid PTSD - Planning Grant</td>
<td>Pharmacotherapies for Alcohol and Substance Use Disorders Consortium</td>
<td>2018-2020</td>
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<td>Shiner</td>
<td>Evaluating the Effect of PTSD and Evidence-Based PTSD Treatment on Death by Suicide</td>
<td>DoD</td>
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<td>Sloan</td>
<td>An Efficient Exposure-Based Treatment for PTSD Compared to Prolonged Exposure: A Noninferiority Trial</td>
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<td>Sullivan</td>
<td>Neural Metabolic Stress in PTSD</td>
<td>NIH NIMH</td>
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<td>Wolf</td>
<td>Prevalence and Impact of Sleep Disorders in Service Members Receiving Treatment for PTSD</td>
<td>DoD</td>
<td>2018-2023</td>
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<td>Wolf</td>
<td>Neurobiological Correlates of Accelerated Cellular Aging</td>
<td>NIH NIA</td>
<td>2018-2020</td>
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<td>Wolf</td>
<td>Curcumin as a Novel Intervention for PTSD-Related Inflammation: A Magnetic Resonance Spectroscopy Study</td>
<td>One Mind Foundation</td>
<td>2018-2021</td>
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<td>Zimmerman</td>
<td>Participatory System Dynamics vs. Audit and Feedback: A Cluster Randomized Trial of Mechanisms of Implementation Change to Expand Reach of Evidence-based Addiction and Mental Health Care</td>
<td>NIH NIDA</td>
<td>2019-2023</td>
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<td>Zimmerman</td>
<td>Participatory System Dynamics vs. Usual Quality Improvement: Cost-Effectiveness of Staff Engagement in VA Data Modeling Simulations to Implement Timely Veteran Access to High-Quality Mental Health Care</td>
<td>VA HSR&amp;D</td>
<td>2018-2022</td>
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CDA Career Development Award; CDC Centers for Disease Control; CSP Cooperative Studies Program; CSR&D Clinical Science Research and Development Service; DoD Department of Defense; HSR&D Health Services Research and Development Service; NIA National Institute on Aging; NIDA National Institute on Drug; NIH National Institutes of Health; NIMH National Institute of Mental Health; NIOSH National Institute for Occupational Safety and Health; PCORI Patient-Centered Outcomes Research Institute; VA Veterans Affairs


Appendix D: Fiscal Year 2018 Publications


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Appendix D: Fiscal Year 2018 Publications


Appendix E:
Fiscal Year 2018 In Press and Advance Online Publications


Appendix E: Fiscal Year 2018 In Press and Advance Online Publications


Appendix E: Fiscal Year 2018 In Press and Advance Online Publications


Appendix E: Fiscal Year 2018 In Press and Advance Online Publications


Appendix F:
Fiscal Year 2018 Scientific Presentations

American Psychological Association | San Francisco, CA, August 2018

1. Allen, M., Kimerling, R., & Gaska, K. Patterns of adversity predict social determinants of health among veteran women.

2. Beristianos, M., Mallard, K. N., Song, J., Lane, J., Landy, M., Shields, N., Monson, C., & Wiltsey Stirman, S. An examination of Cognitive Processing Therapy consultation activities on fidelity and symptom change. In M. Beristianos (Chair), Effectiveness and implementation of evidence-based psychotherapies for trauma and PTSD.


8. Kimerling, R., Allen, M., & Gaska, K. Beyond revictimization: Constellations of adversities predict for post-year IPV.


12. Rosen, C. S., Clothier, B., Noorbaloochi, S., Smith, B. N., Orazem, R., & Sayer, N. Organizational factors associated with wider reach of evidence-based psychotherapies for PTSD. In M. Beristianos (Chair), Effectiveness and implementation of evidence-based psychotherapies for trauma and PTSD.


15. Shipherd, J. C. Understanding risk and resilience for suicidal ideation and attempts in transgender veterans. In K. Lehavot (Chair), Understanding risk and resilience for suicidal ideation and attempts in transgender veterans.


Anxiety and Depression Association of America | Washington, DC, April 2018

19. Abdallah, C. Ketamine as a tool: The path to a biologically defined psychiatric disorder.


Appendix F: Fiscal Year 2018 Scientific Presentations

(Angina and Depression Association of America, continued)


25. Lee, D. J., Lee, L. O., Bovin, M. J., Green, J. D., Klein, A., Rosen, R. C., Keane, T. M., & Marx, B. P. Examination of the nature and longitudinal course of PTSD and depression symptoms among OEF/OIF veterans: Preliminary results from the Veterans After-Discharge Longitudinal Registry (Project VALOR). In B. P. Marx (Chair), Understanding the nature and course of posttraumatic stress disorder symptoms: Implications of assessment and measurement strategies.


Association for Behavioral and Cognitive Therapies | San Diego, CA, November 2017


35. Creech, S. K., Benzer, J., Ebalu, T., Murphy, C. M., & Taft, C. T. National implementation of a trauma-informed intervention to prevent and end intimate partner violence in the Department of Veterans Affairs: First year outcomes. In L. McGinn (Chair), Novel targets and change mechanisms in prevention.


37. Curry, I., Lyons, R., & Norman, S. B. The impact of negative cognitions related to trauma on impairment of functioning due to pain.


40. Galovski, T. E. Treating dysregulated anger in traumatized populations: Outreach along the continuum of care. In M. A. Mackintosh (Chair), Treating dysregulated anger in traumatized populations: Outreach along the continuum of care.


42. Greene, C. J., Mackintosh, M. A., & Morland, L. A. Leveraging technology to facilitate anger management therapies. In M. A. Mackintosh (Chair), Treating dysregulated anger in traumatized populations: Outreach along the continuum of care.

43. Gutner, C. A., & Wiltsie Stirman, S. Shortening the science-to-service pipeline: Forming a tighter link between neuroscience and implementation science.


47. Lyons, R., Curry, I., & Norman, S. B. Role of negative cognitions about the self across domains of functioning in treatment-seeking veterans with co-occurring PTSD and AUD.

48. Mackintosh, M. A., Greene, C. J., & Morland, L. A. Treating dysregulated anger in traumatized populations: Outreach along the continuum of care. In M. A. Mackintosh (Chair), Treating dysregulated anger in traumatized populations: Outreach along the continuum of care.

**Appendix F: Fiscal Year 2018 Scientific Presentations**

(Association for Behavioral and Cognitive Therapies, continued)


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**Association for Psychological Science | San Francisco, CA, May 2018**


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**Combat PTSD Conference | San Antonio, TX, October 2017**

71. Gutner, C. A. The Unified Protocol for PTSD. In J. Wachen (Chair), New frontiers in PTSD treatment.


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76. Rosen, C. S., & Sayer, N. A. Organizational factors that promote clinics’ use of evidence-based treatments for PTSD.

77. Weinstein, E., Smidt, K., Litwack, S., Unger, W., & Niles, B. L. What is Present Centered Therapy (PCT)? A closer look at the common control group in posttraumatic stress disorder clinical trials.

International Society for Traumatic Stress Studies

78. Abdallah, C. PTSD and depression symptom severities are differentially associated with hippocampal subfield volume loss in combat veterans.


80. Arditte Hall, K., Rosebrock, L. E., Pineles, S. L., Rando, A., & Liverant, G. I. State and trait emotion regulation in veterans with PTSD and depression. In K. Arditte Hall (Chair), Elucidating the mechanisms of dysfunction in PTSD and depression.

81. Arenson, M., McCaslin, S. E., Neylan, T. C., & Cohen, B. Predictors of high-functioning in veterans with PTSD: Results from the Mind Your Heart Study.


83. Averill, L., Abdallah, C., Southwick, S. M., Krystal, J. H., Gelernter, J., & Pietrzak, R. H. Examining the effects of APOE genotype and PTSD on cognitive dysfunction in older veterans: Results from the National Health and Resilience in Veterans Study.

84. Bernardy, N. C., & Sherrieb, K. Innovative strategies to improve access to evidence-based PTSD treatment for rural veterans. In N. C. Bernardy (Chair), Complicated prescribing practices in VA patients with PTSD: Approaches to observation and improvement.


86. Carlson, E. B., Palmieri, P. A., & Dekel, R. What do mental health risks in primary care veterans tell us about mental health needs?


88. Cohen, Z. D., Wiltse Stirman, S., DeRubeis, R., Smith, B. N., & Resick, P. A. Improving outcomes through a new variable selection approach for treatment selection in sexual trauma PTSD. In Z. Cohen (Chair), Precision medicine in trauma: Selecting the optimal treatment for an individual with PTSD.

89. Creech, S. K., Benzer, J., Ebalu, T., Murphy, C. M., & Taft, C. T. National implementation of a trauma-informed intervention for intimate partner violence in the Department of Veterans Affairs: First year outcomes. In S. Creech (Chair), New directions in assessing and treating intimate partner violence among women and men veterans in the Department of Veterans Affairs.


92. Galovski, T. E., & Chappuis, C. Creative fidelity: Persevering in the administration of manualized protocols despite seemingly insurmountable odds. In M. Beristianos (Chair), EBP implementation in complex treatment systems and settings: Training, access, processes, and outcomes.


95. Greenbaum, M. A., Neylan, T. C., & Rosen, C. S. Prescribing practices for PTSD-related insomnia in two cohorts of U.S. veterans. In N. C. Bernardy (Chair), Complicated prescription practices in VA patients with PTSD: Approaches to observation and improvement.


97. Grillo, A., Iverson, K. M., & Dichter, M. E. Screening female patients for intimate partner violence in VHA: Evidence to inform modifications or de-implementation of secondary screening recommendations.


101. Iverson, K. M. Network analysis of PTSD symptoms in a sample of female veterans with and without a history of intimate partner violence. In M. Suvak (Chair), Network analysis of PTSD symptoms in a sample of female veterans with and without a history of intimate partner violence.
Appendix F: Fiscal Year 2018 Scientific Presentations

(International Society for Traumatic Stress Studies, continued)


103. Keefe, J. J., Wittey Stirman, S., Cohen, Z. D., DeRubeis, R., Smith, B. N., & Resick, P. A. What works for whom in sexual trauma PTSD: Patient characteristics indicate which treatment they are most likely to complete. In Z. Cohen (Chair), Precision medicine in trauma: Selecting the optimal treatment for an individual with PTSD.


106. Knight, J. A., Belingeri, A., & Fox, A. Variability in unique PTSD symptom patterns compared across clinical and non-clinical samples: The myriad manifestations of PTSD.


114. Maieritsch, K. P., Romero, E., Voss Horrell, S., Hessinger, J., & Hamblen, J. L. Preparatory treatment activities, are they necessary?


123. Niles, B. L., Smidt, K., Weinstein, E., & Fisher, L. M. Evidence-based psychotherapies for PTSD: How are they carried out in a real-world VA setting?


127. Rosen, C. S., Clothier, B., Noorbaloochi, S., Smith, B. N., Orazem, R., & Sayer, N. Which veterans receive evidence-based psychotherapy for PTSD. In M. Beristianos (Chair), EBP implementation in complex treatment systems and settings: Training, access, processes, and outcomes.

128. Sanders, W., Smith, B. N., & Vogt, D. Mental health and quality of life predictors of VA family service use.

129. Schnurr, P. P. Discussant. In A. Wagner (Chair), Pharmacologic agents as treatment and adjunct to psychotherapy for PTSD: Data with MDMA, oxytocin and ketamine.

130. Schnurr, P. P. Discussant. In Z. Cohen (Chair), Precision medicine in trauma: Selecting the optimal treatment for an individual with PTSD.

131. Schnurr, P. P., & Lunney, C. A. Residual symptoms following Prolonged Exposure and Present-Centered Therapy for PTSD in female veterans and soldiers. In S. Larsen (Chair), The aftermath of PTSD treatment: Characteristics associated with either residual symptoms or long-term improvement.
Appendix F: Fiscal Year 2018 Scientific Presentations

(Continued from previous page)

132. **Shiner, B.** Anticonvulsant medication use in veterans with posttraumatic stress disorder.

133. **Shiner, B.** Trends in opioid use disorder diagnoses and medication treatment among veterans with posttraumatic stress disorder. In N. C. Bernardy (Chair). Complicated prescribing practices in VA patients with PTSD: Approaches to observation and improvement.


135. **Sippel, L. M., Watkins, L. E., Pietrzak, R. H., Hoff, R., & Harpaz-Rotem, I.** The unique roles of emotional numbing and arousal symptoms in relation to social connectedness among military veterans in residential treatment for PTSD.

136. **Spoont, M., Sayer, N., Rosen, C. S., Nelson, D., Murdoch, M., & Kehle-Forbes, S.** Six months after a PTSD diagnosis – Are veterans any better?

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**Society of Biological Psychiatry | New York, NY, May 2018**


145. **Duman, R.** Stress, depression and antidepressants: Remodeling synaptic connections.

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**Other**

149. **Abdallah, C.** (2018, January). Surge in prefrontal connectivity underlies the rapid acting antidepressant effects of ketamine. In M. Kabbaj (Chair), *Ketamine and depression*. Winter Conference on Brain Research (WCBR), Whistler, Canada.


152. **Akiki, T.** (2018, February). Network-restricted topology in neuroimaging: Exploring the default mode in PTSD. Mood and Anxiety Program (MAP) Seminar at the Department of Psychiatry, Icahn School of Medicine at Mount Sinai, New York, NY.


Appendix F: Fiscal Year 2018 Scientific Presentations


Appendix F: Fiscal Year 2018 Scientific Presentations (Other, continued)


Appendix F: Fiscal Year 2018 Scientific Presentations

(Other, continued)


209. Pless Kaiser, A. (2018, April). Trauma and aging: Assessment and treatment among older adults and veterans. University of Massachusetts Boston Gerontology Department Faculty and Student Speaker Series, University of Massachusetts-Boston, Boston, MA.


217. Sanacora, G. (2017, October). Intravenous and intranasal rapid-acting antidepressants. 16th Annual Psychopharmacology Update, Cincinnati, OH.


233. Street, A. E. (2018, September). Trauma exposure and PTSD among women veterans. A Call to Arms: Advancing Women's Health Research in the Military, Boston University School of Medicine, Boston, MA.


Appendix F: Fiscal Year 2018 Scientific Presentations


Appendix G: Fiscal Year 2018 Educational Presentations

Department of Veterans Affairs


17. McGee-Vincent, P. (2018, April). Developing a peer-led apps group for tech tools for Whole Health [Webinar]. Virtual training delivered to primary care providers and peer support specialists in support of their VISN 1 Innovation Grant.


### Appendix G: Fiscal Year 2018 Educational Presentations

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<th>Department of Veterans Affairs PTSD Mentoring Workshop to Improve Suicide Prevention Strategies in PTSD Specialty Care</th>
<th>Orlando, FL, January 2018</th>
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<td>28. <strong>Maieritsch, K.</strong> &amp; <strong>Yoder, M.</strong> What is specialty PTSD care? And who is being treated?</td>
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<th>International Society of Traumatic Stress Studies</th>
<th>Chicago, IL, November 2017</th>
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<td>38. <strong>Watson, P.</strong> Walser, R. D., Juhasz, K. M., <strong>McCaslin, S. E.,</strong> &amp; Matteo, R. Online toolkits to support providers and responders working with traumatized individuals and communities.</td>
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<th>Women Veterans, Traumatic Stress and Post-military Health: Building Partnerships for Innovation Summit</th>
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<td>47. McCutcheon, S., Galovskii, T., McGraw, K., &amp; Street, A. (Chair). Key priority areas for future services and research: The “State of the Union” in women veterans’ health and key future directions.</td>
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**NATIONAL CENTER FOR PTSD | [www.ptsd.va.gov](http://www.ptsd.va.gov) | 2018 ANNUAL REPORT | 77**
Appendix G: Fiscal Year 2018 Educational Presentations

Other


59. Galovski, T. E. (2018, September). Moving the needle further toward recovery in the treatment of PTSD: Flexible approaches to care. Women's Health Division at Brigham and Women's Hospital, Boston, MA.


77. Schnurr, P. P. (2017, October). PTSD Treatment Decision Aid: The choice is yours. Warrior Wellness Alliance, Boston, MA.


82. Street, A. E. (2018, April). Day of awareness for sexual assault and trauma. Roundtable discussion hosted by Boston University School of Medicine's STOP (Sexual Trauma Outreach and Prevention), Boston, MA.


### Appendix H: Fiscal Year 2018 Editorial Board Activities

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<tr>
<th>Journals</th>
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<td><strong>Administration and Policy in Mental Health Services and Mental Health Services Research</strong></td>
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<td><strong>American Journal of Medical Genetics, Part B</strong></td>
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