National Center for PTSD
Fiscal Year 2017 Annual Report

BIOMARKERS
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<th>Acronyms Used in the Text</th>
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<tbody>
<tr>
<td><strong>AI</strong> Artificial Intelligence</td>
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<tr>
<td><strong>AIMS</strong> Anger and Irritability Management Skills</td>
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<tr>
<td><strong>CAPS-5</strong> Clinician-Administered PTSD Scale for DSM-5</td>
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<tr>
<td><strong>CBCT</strong> Cognitive-Behavioral Conjoint Therapy</td>
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<td><strong>CBT</strong> Cognitive-Behavioral Therapy</td>
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<td><strong>CBT-I</strong> Cognitive-Behavioral Therapy for Insomnia</td>
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<td><strong>CE</strong> Continuing Education</td>
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<td><strong>CPT</strong> Cognitive Processing Therapy</td>
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<td><strong>CSP</strong> Cooperative Studies Program</td>
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<td><strong>CTE</strong> Chronic Traumatic Encephalopathy</td>
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<td><strong>DoD</strong> Department of Defense</td>
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<td><strong>DSM-5</strong> <em>Diagnostic and Statistical Manual of Mental Disorders—Fifth Edition</em></td>
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<td><strong>DSPS</strong> Dissociative Subtype of PTSD Scale</td>
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<td><strong>EBP</strong> Evidence-Based Practice</td>
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<td><strong>EBT</strong> Evidence-Based Treatment</td>
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<td><strong>EEG</strong> Electroencephalography</td>
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<tr>
<td><strong>EMDR</strong> Eye Movement Desensitization and Reprocessing</td>
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<td><strong>ENIGMA</strong> Enhancing Neuroimaging Genetics Through Meta-Analysis</td>
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<td><strong>EWAS</strong> Epigenome-Wide Association Study</td>
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<td><strong>FKBP5</strong> FK506 Binding Protein 5</td>
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<td><strong>fMRI</strong> Functional Magnetic Resonance Imaging</td>
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<td><strong>GABAergic</strong> Gamma-Aminobutyric Acid-Ergic</td>
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<td><strong>GWAS</strong> Genome-Wide Association Study</td>
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<td><strong>HSR&amp;D</strong> Health Services Research &amp; Development</td>
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<td><strong>ICD-11</strong> International Classification of Diseases, Version 11</td>
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<td><strong>IPV</strong> Intimate Partner Violence</td>
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<td><strong>LATR</strong> Later-Adulthood Trauma Reengagement</td>
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<td><strong>LIGHT</strong> Longitudinal Investigation of Gender, Health, and Trauma</td>
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<td><strong>MBC</strong> Measurement-Based Care</td>
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<td><strong>mGluR5</strong> Metabotropic Glutamatergic Receptor</td>
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<td><strong>MMPI-2</strong> Minnesota Multiphasic Personality Inventory-2</td>
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<tr>
<td><strong>MRI</strong> Magnetic Resonance Imaging</td>
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<td><strong>MST</strong> Military Sexual Trauma</td>
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<td><strong>MVP</strong> Million Veteran Program</td>
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<td><strong>NCPTSD</strong> National Center for PTSD</td>
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<td><strong>NDHS</strong> Neurocognition Deployment Health Study</td>
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<td>NEPEC</td>
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<td>NF-κB-activation</td>
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From the Executive Director

Over the past three decades, great strides have been made in understanding, diagnosing, and treating posttraumatic stress disorder (PTSD). The National Center for PTSD, through our seven centers of excellence around the country, and through our collaborations with scientists in government, academia, and the medical community, has been responsible for many of the breakthroughs that have dramatically improved the lives of our nation’s Veterans and other trauma-exposed individuals.

National Center investigators have been on the cutting edge of studying the biology of PTSD since the Center opened in 1989. In recent years, advances in technology have significantly enhanced our ability to study the biology of PTSD, and National Center investigators are leveraging many of these new approaches. Novel neuroimaging technologies have improved our ability to study the structure and function of the brain. Advances in genetics have led to a better understanding of how a person’s DNA could affect their response to traumatic events. Large-scale projects, like VA’s Million Veteran Program (MVP), are enabling investigators to do research with great precision on large samples. We are especially proud of the establishment of VA’s National PTSD Brain Bank—spearheaded by National Center founder and former Executive Director Matthew Friedman.

Much of this work is focused on identifying biomarkers: measurable biological factors that can improve our ability to diagnose, treat, and even prevent PTSD. For example, a biomarker might be a specific gene or brain-activity pattern that predicts risk for PTSD, or the likelihood of responding to a particular treatment. The introductory section of this Annual Report highlights some of the research on biomarkers taking place in several of the National Center’s Divisions, and provides a glimpse of what the implications might be for our Veterans, Servicemembers, and others affected by PTSD.

Other efforts, across all our Divisions, have led to additional important advances in PTSD research, education, and outreach. Within our research portfolio, we have devoted increased attention to the topic of PTSD and suicide, which was adopted in FY 2017 as one of our key operational priorities. Several studies have been completed and others are underway to better identify risk factors for suicide and targets for prevention efforts. Within our education portfolio, we have been especially active in using new communications technologies to reach clinicians and to communicate directly with Veterans including development of a variety of videos, web resources, and mobile apps. These efforts and many others are described more fully in the Major Research Initiatives and Promoting PTSD Education sections of this Annual Report.

We at the National Center are pleased and proud to be at the forefront of developing and disseminating tools and treatments that will improve the lives of the nation’s Veterans, now and in the future.

Paula P. Schnurr, PhD
Executive Director

Dr. Paula P. Schnurr is the Executive Director of the National Center for Posttraumatic Stress Disorder; she served as Deputy Executive Director from the time of the National Center’s founding in 1989 to 2014. She is a Professor of Psychiatry at the Geisel School of Medicine at Dartmouth and Editor of the Clinician’s Trauma Update-Online.
Throughout much of the history of our understanding of posttraumatic stress disorder (PTSD), the condition was viewed as a problem of psychological maladjustment, with little recognition of how the biology of the brain was contributing to or being affected by a person’s reaction to traumatic stress. Over time, the biological underpinnings of PTSD have been increasingly recognized, including sleep cycle abnormalities, evidence of autonomic hyper-reactivity, and dysregulation of hormones involved in the stress response.

Investigators at the National Center for PTSD have long been at the cutting edge of research focused on the biology of PTSD. In the 1980s and 1990s, National Center investigators identified the first biomarker (measurable biological factor) in Veterans with PTSD: disturbances in neural signaling via norepinephrine. In 1989, the Center initiated the first adequately powered multicenter biomarker study of PTSD. This project, which evaluated heart rate increases in response to trauma reminders, was also the first VA Cooperative Studies Program (CSP) study of PTSD. Additionally, the National Center was the first to discover alterations in specific signaling molecules in the brain among Veterans with PTSD, using single-photon emission computed tomography (SPECT) and positron emission tomography (PET) technologies. In the 1990s, investigators were the first to observe that the volume of the hippocampus (a region of the brain associated with memory and fear) was smaller in PTSD patients. But, despite these early findings, many questions remained about what was happening in the brains of people with PTSD.

Advances in technology over the past several years have greatly enhanced scientists’ ability to answer those questions. In 2014, VA developed the first-ever National Posttraumatic Stress Disorder Brain Bank (PTSD Brain Bank). This is a human tissue bank that collects, processes, stores, and distributes research specimens for future scientific studies, giving scientists a powerful tool for directly examining the brain tissue of people affected by PTSD. Advances in genetics have created new pathways for exploration, leading to a better understanding of the role genetics plays in an individual’s susceptibility to the disorder, as well as to how experiences such as traumatic stress can change the way a person’s genes are expressed (a field called epigenetics). The continued development of imaging technologies such as magnetic resonance imaging (MRI) and PET has enabled investigators to better observe the brain at rest and in action as it processes and responds to specific tasks and information.

A major goal of this work is to develop biomarkers of PTSD risk and specific PTSD subtypes that will guide assessment, diagnosis, prevention, and treatment efforts. Dr. John Krystal, Director of the National Center’s Clinical Neurosciences Division in West Haven, Connecticut, believes this work is valuable in several ways. “We want to use biology to inform diagnosis, prevention, and treatment of PTSD—for instance, how this knowledge can help us
predict whether a person might respond to a particular treatment.” He adds, “But we also want to use biomarkers to understand the underlying biology and figure out the why—that is, why a person responds in a particular way. Biomarkers are always expressions of something deeper.”

The sections that follow describe some of the key research initiatives at the National Center aimed at identifying and understanding biomarkers for PTSD risk, resilience, and treatment response.

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**Genetics of PTSD**

Not everyone who experiences a traumatic event will develop PTSD. Each person’s brain responds to trauma in its own way, directed to some degree by that person’s genetic code. In just the past 20 years or so, the field of genetics has advanced tremendously. National Center investigators have used these exciting new technologies to understand the role of genetics in PTSD. They have been aided in their quest by having access to data from the National PTSD Brain Bank and VA’s Million Veteran Program (MVP), which collects genetic and health data from Veterans (see sidebars).

The MVP provides scientists with the unprecedented capability to do in-depth genetic analysis due to the large number of Veterans participating. Data collection from more than 300,000 Veterans has been completed, and analyses of these data are already underway. This high volume of data allows scientists to perform genome-wide association studies (GWAS), a powerful methodology for understanding the genetic basis of disorders.

Dr. Joel Gelernter, a psychiatrist and staff investigator at the Clinical Neurosciences Division, has been at the forefront of GWAS and highlights the importance of these types of studies. “In earlier studies, investigators might interrogate a small set of genes that they think are related to the syndrome of interest. But that approach is...
inherently limited by what you know beforehand. GWAS can look at markers that are dispersed throughout the human genome—typically looking at 250,000 or more markers—without being burdened by prior ideas.” These studies can identify unanticipated aspects of PTSD biology and can find overlaps in genetics with other disorders such as depression.

In one of the first PTSD studies associated with the MVP, Dr. Gelernter identified genes potentially involved in the phenomenon of reexperiencing, in which a person has repeated disturbing memories, thoughts, and/or images that are so severe that the trauma appears to be happening again. Results of this study will be published in 2018. National Center investigators have also collaborated with the Psychiatric Genomics Consortium (PGC) PTSD Workgroup. GWAS analyses from PGC data suggested that differences in multiple genes contributed to the risk for PTSD. These analyses also suggested that PTSD had a relatively high degree of genetic overlap with schizophrenia, especially compared with the overlap with other disorders, such as depression, which were expected to share heritability.

These findings highlight the likelihood that many genes play a role in the development of PTSD. According to Dr. Ronald Duman, a neuroscientist and staff investigator at the Clinical Neurosciences Division, “We are looking beyond the idea of finding one gene that is responsible for PTSD—that is too simplistic. It’s clear now that the expression of many, many genes is involved, and that we need to look at the entire array to identify gene mutations that underlie psychiatric conditions.”

In addition to specific genes that may make someone more or less likely to develop PTSD, traumatic experience itself may alter gene expression. Dr. Erika Wolf, a psychologist and staff investigator at the Behavioral Science Division, has been studying epigenetic changes—that is, changes that influence the degree to which a particular gene can be expressed to produce specific proteins. Her research has found a relationship between epigenetic changes and cellular aging: specifically, that the brains and bodies of patients with PTSD can age at a biological rate that is faster than the rate that might be expected from their chronological age. For these patients, the manifestations of aging, such as the onset of metabolic changes or cognitive decline, might be occurring prematurely.
According to Dr. Wolf, “Converging areas of our research—using genetic, metabolic, inflammatory, and neuronal markers—provide evidence that PTSD is associated with accelerated aging. This is particularly concerning, given that much of our research has focused on young Veterans in their early 30s; and it highlights the need to better identify Veterans with an accelerated aging profile and to intervene early with them.”

Neural Connectivity in PTSD: From Synapse to Systems

Some of the earliest studies of PTSD focused on examining the volume and structure of specific regions of the brain, particularly areas such as the hippocampus and amygdala, which are involved in emotion and memory. Today, investigators are using sophisticated imaging techniques to look beyond that static picture and focus instead on connections and interactions within the brain—from the connections between individual cells to the connections between larger brain regions.

One promising avenue of study involves the neurons and synapses in the brain. Neurons are the main brain cells responsible for processing and transmitting information; they communicate with each other primarily through chemical connections (synapses). Each neuron could have as many as 10,000 synapses, and the synapses are constantly being created and eliminated based on life experiences. National Center scientists are discovering that people with PTSD have decreased synaptic density—that is, a reduced number of synapses in various brain regions.

According to Dr. Krystal, “When you lose synaptic connectivity [density], the fidelity of communication decreases, and plasticity of the networks—or their ability to adapt—decreases. Things that are ingrained, like traumatic memories, can stay ingrained, and the person's ability to learn new adaptive strategies is compromised.” It is also possible that reduced synaptic density is a precursor to PTSD, making a person more vulnerable to severe reactions to traumatic stress, which in turn reduces synaptic density even further. Finding ways to increase synaptic connectivity in PTSD patients may help treat the disorder; one medication that appears promising.
for this purpose is ketamine, which has been shown to have antidepressant effects associated with increases in synaptic connectivity.

At the synapse, communication occurs when neurotransmitters released from one neuron bind to a specific receptor on a neighboring neuron. Dr. Irina Esterlis, a neuropsychologist and staff investigator at the Clinical Neurosciences Division, investigates receptors in the brains of people with mental illness. One receptor that may be critical in PTSD is called mGluR5 (metabotropic glutamatergic receptor 5), a synaptic receptor for glutamate, the predominant excitatory neurotransmitter in the brain. This receptor is involved in the brain’s response to stress and anxiety, and helps regulate neural networks and synaptic activity in the brain. “We had been studying this [receptor] for several years in patients with depression or serious drug use problems,” says Dr. Esterlis. “When we turned our attention to PTSD, we found a pattern that was very different from these other disorders.” This finding suggests that there is something unique about the function of this receptor in patients with PTSD.

Examining neural connectivity at a broader level, National Center investigators are studying networks throughout the brain, or how specific regions of the brain work together to respond to particular situations. For example, three areas of the brain—the amygdala, hippocampus, and prefrontal cortex—are involved in a person’s ability to determine the difference between dangerous stimuli and safe stimuli in the environment. Imaging studies from the Clinical Neurosciences Division have shown that connectivity of the hippocampus with other brain regions is associated with the severity of PTSD. Other studies have shown abnormal decision-making and fear regulation in patients with PTSD.

With advances in neuroimaging, especially PET, much of the research on mGluR5 and other receptors can be done with living patients. Dr. Esterlis has found that the PTSD Brain Bank is very helpful in her work. “Our studies of live people give us great information. We can connect the findings to the person’s symptoms, cognition, job performance, [and] many other functions. But you can’t figure out why this is happening unless you can actually examine the tissue.” Dr. Esterlis says she hopes to be able to study patients soon after their traumatic experience to observe the development of PTSD, and to determine whether mGluR5 function is indeed an accurate biomarker for PTSD.

Dr. Krystal predicts that a better understanding of mGluR5 can lead to the development of novel therapeutic approaches. “We are characterizing the uniqueness of PTSD as a disorder, as distinct from major depression, for the first time. Now we can say not just what PTSD is, but also what it is not. This is important, because until now every pharmacologic treatment approved for PTSD was a treatment for depression. The unique biology of PTSD will push us to think about therapies in new ways.”

Dr. Chadi Abdallah, a psychiatrist and staff investigator at the Clinical Neurosciences Division, sees promising avenues for future examination. “We are discovering that there is a common pathology across many stress-related disorders including PTSD, depression, anxiety disorders, and others. But there are also significant differences. We need to work on identifying the specifics for each of these disorders, in order to develop more effective treatments.”

Inflammation and PTSD

According to Dr. Mark Miller, a psychologist and staff investigator at the Behavioral Science Division, “PTSD is a psychiatric disorder that, when chronic, is associated
with a whole cascade of biochemical changes in the body. If these are not addressed and treated, they will exert neurodegenerative effects in the brain.” He adds, “Mental illness can have an effect that remodels the brain, causing permanent alterations in structure and function that further promote illness and disability.”

In the 1990s, investigators at the Clinical Neurosciences Division were the first to describe this paradoxical finding about patients with PTSD: these patients tended to show reductions, rather than the predicted elevations, in levels of the stress hormone cortisol. As cortisol is a key coordinator of inflammatory responses in the body, disturbances in cortisol release set the stage for considerations of disturbances in inflammatory response in PTSD.

Inflammation occurs when the body’s immune system responds to an environmental attack such as an infectious agent. Environmental stress and PTSD may also stimulate the immune system and inflammation, and various genes and proteins are involved in that process. Research has consistently shown that PTSD patients have elevated levels of inflammation, as measured through blood work. Dr. Miller’s work has demonstrated that inflammation occurs in the brain as well. Using tissue from the PTSD Brain Bank, his genetic studies have found elevated levels of inflammatory genes in the tissue of the prefrontal cortex of the brains of PTSD patients. Inflammation associated with PTSD may also contribute to the accelerated aging phenomenon.

If inflammation plays a significant role in developing PTSD and in the effects PTSD has on the body, it may be possible to develop medications to target these processes.

Changes made to the patient’s lifestyle, including better nutrition and increased exercise, could also be beneficial. PTSD patients often suffer from sleep disturbances; given that sleep plays an important restorative function that can counteract the effects of inflammation and oxidative stress, higher quantity and quality of uninterrupted sleep could be beneficial as well.

Implications for Veterans of Tomorrow

National Center investigators hope their exploration of the biology of PTSD will identify biomarkers that will improve clinicians’ ability to diagnose and treat patients, and that might even be used to prevent the disorder. Biomarkers associated with PTSD might help clinicians make a definitive diagnosis of PTSD in complicated clinical situations or might assist with determining which treatment should be used for an individual patient. Biomarkers may help prevent PTSD by identifying individuals at high risk and providing targets for intervention to prevent onset of the disorder. Identification of biomarkers may also lead to the development of new treatments. According to Dr. Duman, “If we can get a biomarker for PTSD, leading to a new treatment, that would be a big home run.”

The National Center’s work on biomarkers has important implications for customized treatments, often referred to as “precision medicine.” According to Dr. Krystal, “Right now we have one flavor of PTSD, but we might find that there are many varieties. This is important because some treatments are only going to work if the patient has the relevant abnormality in his or her biochemistry.”
For example, a recent study tested an anti-inflammatory medication for depression, but found that a patient had to have a particular biochemical signature for the treatment to be effective. “When we can bring these assessments to the level that we can use them to inform treatment,” says Dr. Krystal, “we can do a better job in prescribing medications.”

Genetic and epigenetic research can improve treatment in other ways as well. For example, Dr. Wolf says, “We hope to be able to use biological indices to see who should get what interventions. If we find that a person has a genetic risk or propensity for obesity, for instance, we might avoid medications whose side effects include weight gain. That person might be sent to an exercise intervention instead.”

Dr. Matthew Friedman, Senior Advisor to the National Center and Director of the PTSD Brain Bank, says, “The future of medicine will be pharmacogenetics. It won’t be long before you can get a genetic workup just like you get blood work today, so that we can match the treatment with the particular person. The only way to do this is to understand how the brain is changing.”

Dr. Krystal sees a complex road ahead. “Right now what we have is a jigsaw puzzle with a few randomly matched pieces in it. Seeing how all the different pieces come together, and therefore being able to see the ultimate picture, is still a long way away.”

VA’s National PTSD Brain Bank

VA’s National Posttraumatic Stress Disorder Brain Bank (PTSD Brain Bank) was formally established in 2014, thanks in part to Congressional support led by U.S. Senator Patrick Leahy (D-VT). It is the first and only facility of its kind devoted exclusively to PTSD, and consists of a consortium of five VA Medical Centers as well as the Uniformed Services University of Health Sciences (USUHS). The PTSD Brain Bank is headquartered at the National Center’s Executive Division in White River Junction, Vermont, and is under the direction of Dr. Matthew Friedman. Dr. Friedman is the former Executive Director of the National Center for PTSD and currently serves as a Senior Advisor to the National Center. He was a leader in establishing VA’s National PTSD Brain Bank and serves as its Director.

The PTSD Brain Bank currently has 168 brains, including 56 PTSD brains, and has received commitments of more than 100 additional brains by the end of 2018. Donors can be either Veterans or non-Veterans. Because of the importance of acquiring suitable comparison tissue, the PTSD Brain Bank also collects tissue from donors who had no psychiatric illness during their lifetimes, or who suffered from a non-PTSD disorder such as depression.

Donations of tissue to the PTSD Brain Bank can occur in two ways. In many cases, consent for donation is obtained from next-of-kin shortly after their loved one dies. Other tissue comes from individuals who enroll in advance and personally consent to have their brain tissue go to the PTSD Brain Bank after death (called antemortem donors). The advantage of acquiring commitments from antemortem donors is that detailed data can be collected on their medical and psychological histories while they are alive.

The PTSD Brain Bank’s physical hub is in Boston, where it is programmatically linked with the brain banks of VA Boston and Boston University, both of which are also dedicated to advancing the understanding and treatment of other illnesses including Alzheimer’s disease, traumatic brain injury (TBI), chronic traumatic encephalopathy (CTE), and Gulf War Illness. Relationships with other brain banks can result in useful comparative studies, such as one study currently in process that is comparing data on suicide in individuals with CTE/TBI with individuals who have PTSD.

According to Dr. Friedman, “We can leverage these other resources to do things that would have been unimaginable. This is like a dream come true.”

Pictured: Matthew Friedman, MD, PhD Director of VA’s National PTSD Brain Bank, Senior Advisor to the National Center for PTSD, and former Executive Director of the National Center for PTSD
Major Research Initiatives in Fiscal Year 2017

The National Center’s research activities are driven by operational priorities, first established in 2013, which help organize and focus research on areas most likely to have the greatest benefit to Veterans. Five priorities were initially set: biomarkers, treatments, care delivery, implementation, and the Diagnostic and Statistical Manual of Mental Disorders—Fifth Edition (DSM-5). A sixth priority—PTSD and suicide—was added in FY 2017 to reflect the critical nature of this area of research and the associated portfolio, which has recently grown in both size and scope.

During FY 2017, researchers at the National Center led 136 funded studies—ranging from investigations at a single location to projects across multiple sites—including partner organizations in the government, universities, and agencies outside of the United States. Investigators published 282 peer-reviewed journal articles, book chapters, and books; additionally, there were 140 in-press and advance online publications.

The sections that follow highlight some of the research initiatives undertaken during FY 2017 to address these six operational priorities. See Appendix A for a more complete description of research projects that took place at each of the National Center’s seven Divisions (Executive Division, White River Junction, Vermont; Behavioral Science Division, Boston, Massachusetts; Clinical Neurosciences Division, West Haven, Connecticut; Dissemination and Training Division, Palo Alto, California; Evaluation Division, West Haven, Connecticut; Pacific Islands Division, Honolulu, Hawaii; and Women’s Health Sciences Division, Boston, Massachusetts).

Biomarkers

The National Center is dedicated to research aimed at identifying biomarkers (i.e., measurable biological factors) that inform the prevention, diagnosis, and treatment of PTSD. Key aspects of this work from FY 2017 (i.e., genetics, neural connectivity, and inflammation) are highlighted in the section called “Biomarkers: Using Biology to Better Diagnose, Prevent and Treat PTSD.” In addition, other important studies are underway. Investigators at the Behavioral Science Division have received funding to collect genetic information from saliva samples from individuals participating in Project VALOR (Veterans After-Discharge Longitudinal Registry), a longitudinal registry of over 1,600 male and female combat OEF/ OIF/OND (Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn) Veterans. Researchers...
PTSD and Suicide

This new area of focus aims to better understand the relationship between PTSD and suicide, and to develop strategies to prevent suicide among Veterans with PTSD. An extensive amount of research has shown an association between PTSD and suicidal ideation and behaviors, most recently among Veterans returning from combat in Iraq and Afghanistan. Over the past fiscal year, National Center investigators engaged in studies aimed at identifying risk factors for suicide and at developing interventions that may help prevent suicidal behavior.

During FY 2017, researchers at the National Center published studies that identified associations among suicidal ideation and completed suicide with PTSD reexperiencing and dysphoric arousal symptoms, alcohol misuse, and unplanned hospital discharge (i.e., against medical advice or patient-initiated discharge). Another study found gender differences including the finding that sexual harassment during deployment was a potential risk factor for suicidal ideation in women. Ongoing efforts to identify potential risk factors for suicidal behavior are utilizing large, longitudinal data sets in Veteran and non-Veteran populations; future work will leverage VA’s National Posttraumatic Stress Disorder Brain Bank (PTSD Brain Bank) to identify neurobiological markers associated with suicide risk.

Investigators at the Behavioral Science Division who are working on developing better suicide prevention strategies have shown that having high-quality safety plans may be a key strategy in suicide prevention. In a sample of Veterans at high risk for suicide, higher-quality safety plans were associated with fewer suicidal behavior reports; but, a significant minority of the sample had either an incomplete safety plan or no safety plan at all. At the Clinical Neurosciences Division, investigators are using brain imaging to assess neurobiological correlates of the acute anti-suicidal effects of ketamine in Veterans with PTSD. This work may help identify other brain-based targets for interventions aimed specifically at reducing suicide risk.

Treatment Engagement, Efficiency, and Effectiveness

The National Center has long been a leader in the development of evidence-based treatments (EBTs) and outcomes research. One of the most ambitious efforts is the groundbreaking Cooperative Studies Program investigation (CSP #591) of Prolonged Exposure (PE) and Cognitive Processing Therapy (CPT). Nine hundred Veterans will be enrolled in this study, with recruitment expected to be completed in early 2018. 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. Another ongoing trial is evaluating two psychotherapies (PE and Seeking Safety) for comorbid alcohol use disorder and PTSD.
National Center investigators are also focused on developing strategies for enhancing engagement with care. Ongoing efforts include developing a self-report measure of patients’ likelihood of engaging in care and in investigating reasons for premature dropout from treatment. In one study, investigators are identifying reasons why patients complete or drop out of PE and CPT, and are developing an intervention to improve retention.

Another area of focus is increasing efficiency and effectiveness in the delivery of care. In one study, researchers compared individual CPT with group CPT and found that both treatments led to improved symptoms, although individual CPT was more effective. A newly funded study with active-duty Servicemembers is comparing whether CPT delivered over five days is as effective as CPT delivered over six weeks. Other efforts include investigating strategies for maintaining therapy-related gains after treatment completion.

The National Center is engaged in novel stand-alone and adjunctive treatments for PTSD and associated conditions. Psychotherapeutic approaches being tested include Written Exposure Therapy, a cognitive-behavioral intervention for trauma-related guilt and shame, and a brief counseling intervention designed for women Veterans who have experienced intimate partner violence (IPV). National Center investigators are also looking at complementary and alternative ways to treat conditions associated with PTSD, such as Tai Chi for pain.

Evidence-based pharmacologic interventions for PTSD are relatively limited, so National Center investigators are exploring approaches to treatment that have mechanisms of action different from existing PTSD treatments, including ketamine, ganaxolone (a steroid medication that may reduce anxiety), and focal brain stimulation. Adjunctive approaches being tested include ketamine-enhanced PE and topiramate-enhanced PE. Treatment strategies in development include oxytocin-enhanced psychotherapy and neurofeedback.

### Care Delivery, Models of Care, and System Factors

Improving access to PTSD treatments in many different settings, including in the home, is an important objective of the National Center. To this end, investigators are examining the delivery of care through the use of technologies such as telehealth, web-based interventions, and mobile apps. A recent trial showed that PTSD Coach, a mobile app that assists with self-management, led to greater reduction in PTSD symptoms compared with a control group. An ongoing study is assessing the adjunctive use of this app with evidence-based psychotherapy for PTSD. Another project involves...
modifying VetChange, a web-based intervention for alcohol use disorders, to include features that facilitate collaboration between providers and Veterans.

Other efforts are focused on testing approaches for improving care delivery across health care systems. One initiative is a large, multisite trial comparing two strategies for enhancing therapists’ delivery of CPT. Each strategy involves placing therapists within therapist communities that utilize different approaches to ensuring fidelity to the CPT protocol. Another study is focused on outpatient VA prescribing of benzodiazepines and atypical antipsychotics following academic detailing around best practices.

**Implementation**

The National Center is committed to developing research, strategies, and infrastructure to promote implementation of best practices. Investigators continue to be 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.

New studies at the Dissemination and Training Division include evaluations of methods for simplifying assessment of the quality of Cognitive Behavioral Therapy (CBT) for PTSD, and of competing strategies for enhancing and sustaining the delivery of treatment. These strategies attempt to optimize fidelity to the standard treatment protocol—through either expert consultation and online resources or continuous quality improvement approaches—to improve fit and address barriers to treatment delivery. Another new study aims to increase the use of evidence-based psychotherapy for PTSD in the military health system, and to identify barriers and
facilitators of implementation in this setting. One study nearing completion focuses on assessing and increasing implementation of many core elements of the VA/DoD Clinical Practice Guideline for PTSD in three service delivery sectors: VA, DoD, and the general community.

National Center investigators are also testing and disseminating practices for addressing family violence. The Strength at Home protocol for reducing and preventing IPV is being rolled out across eight VA Medical Centers, and is also being evaluated in a sample of active-duty Servicemembers and their partners. Investigators at the Women’s Health Sciences Division are identifying best clinical practices for screening programs on IPV within VA women’s health primary care settings, with the ultimate goal of disseminating these practices to all VA primary care clinics.

The National Center is also helping to develop the infrastructure for implementation science research. Investigators across multiple Divisions are playing key roles in the VA Measurement-Based Care (MBC) initiative, which will generate data that can be used in future investigations of treatment planning, treatment response, and use of evidence-based practices (EBPs). Another approach includes developing a practitioner-based implementation network across VA and DoD.

### DSM-5

The Diagnostic and Statistical Manual of Mental Disorders—Fifth Edition (DSM-5) is an established classification and diagnostic tool that specifies the diagnostic criteria for all currently recognized psychological disorders. During FY 2017, the National Center continued to update PTSD assessments for the DSM-5 and to explore the utility of the DSM-5 PTSD criteria. One study involved establishing reliability and validity of the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5) in a Veteran population. Investigators also compared the DSM-5 PTSD criteria to the proposed PTSD criteria in the International Classification of Diseases, Version 11 (ICD-11) and found that the DSM-5 criteria were more effective in diagnosing PTSD in Veterans. Another ongoing effort is aimed at continued validation of the DSM-5 version of the Primary Care PTSD Screen (PC-PTSD-5), which is mandated for PTSD screening in VA primary care clinics.
Honors and Awards Received by National Center Staff in FY 2017

Cassidy Gutner, PhD  
*Women's Health Sciences Division*  
Outstanding Reviewer, *Behavioral Therapy*

Brian Marx, PhD  
*Behavioral Science Division*  
Outstanding Contributions to the Science of Trauma Psychology, APA Division 56

Lauren Sippel, PhD;  
Jeremy Tevis, BFA;  
Margaret Willoughby, BA  
*Executive Division*  
First Place, VHA Communications Award for the FY 2015 Annual Report: Implementation Science

Jasmeet Hayes, PhD  
*Behavioral Science Division*  
Best Abstract in Neurotrauma Research, International Brain Injury Association  
Early Career Investigator Award, International Brain Injury Association

Carmen McLean, PhD  
*Dissemination and Training Division*  
Anne Marie Albano Early Career Award for Excellence in Science and Practice Integration, Association for Behavioral and Cognitive Therapies

Denise Sloan, PhD  
*Behavioral Science Division*  
Toy Caldwell-Colbert Award for Distinguished Educator in Clinical Psychology, APA Division 12

Adrienne Heinz, PhD  
*Dissemination and Training Division*  
Best Poster Award, Experiential Technology Conference

PTSD Clinicians Exchange Team including: Josef Ruzek, PhD; Erica Simon, PhD; and Kile Ortigo, PhD  
*Dissemination and Training Division*  
Communicator Award (Websites–General-Health), Academy of Interactive & Visual Arts  
W3 Silver Award, Academy of Interactive & Visual Arts

Fellowships and Travel Awards

Thomas Adams, PhD  
*Clinical Neurosciences Division*  
Travel Award, American College of Neuropsychopharmacology

Cassidy Gutner, PhD  
*Women's Health Sciences Division*  
NIH Implementation Research Institute Fellow  
NIH Clinical Research Student Loan Repayment Award

Kate Iverson, PhD  
*Women's Health Sciences Division*  
NIH Implementation Research Institute Fellow

Lindsey Zimmerman, PhD  
*Dissemination and Training Division*  
2017 System Dynamics Society Summer School Scholarship, MIT Sloan School of Management

Lynnette Averill, PhD  
*Clinical Neurosciences Division*  
Travel Award, American College of Neuropsychopharmacology
Promoting PTSD Education: Training, Dissemination, and Communication

Since the National Center’s inception, education and dissemination efforts have been part of the organization’s mission. The National Center uses a variety of channels both to inform and to obtain feedback from Veterans, clinicians, and the public at large, including initiatives ranging from face-to-face training programs to published literature to the latest technologies. These efforts are facilitated by the extensive network of partnerships among professionals at the seven National Center Divisions and clinicians throughout VA, other government agencies, academia, and the mental health community.

The sections that follow describe some of the many avenues the National Center follows to help ensure that the most up-to-date research knowledge and the best clinical practices are made available as efficiently as possible to help Veterans and others with PTSD. We are proud early adopters of technology—from databases to social media, from apps to avatars—yet we never lose sight of the value in developing relationships with professionals and the public that evolve into long-lasting connections.

PTSD Awareness and Engagement in Treatment

Now more than ever, people with PTSD have a variety of effective treatments to choose from. Whether they opt for trauma-focused psychotherapy—the proven first-line treatment for PTSD—or medications, patients should have an expectation for recovery and for relief of symptoms. At present, however, research that would help match patients to specific treatments is still in its early stages, so choosing among the various options can be challenging.

Research such as VA’s Cooperative Studies Program (CSP) #591—a study comparing the effectiveness of two types of evidence-based psychotherapy—may soon yield clues about which PTSD treatments are best for which patients. Currently, a shared decision-making process, in which the patient and provider collaborate to decide on a treatment plan, is the best practice for choosing a treatment. The PTSD Treatment Decision Aid, a free online tool launched by the National Center in FY 2016, was designed as an element in this process. Users answer questions that help them clarify their treatment goals, watch videos of providers explaining each treatment, and compare treatments using an interactive chart. Afterward, patients can print a summary of their symptoms, goals, and preferences that they can discuss with their providers as part of the shared decision-making process. In FY 2017, the Decision Aid was updated to correspond to the 2017 VA/DoD Clinical Practice Guideline for PTSD. An accompanying Clinician’s Guide (PDF) has useful tips for
providers who incorporate the Decision Aid into their practices.

The recommendations in the VA/DoD Clinical Practice Guideline for PTSD are also reflected in an infographic developed by the National Center in FY 2017, called The Best Treatment for PTSD: The Evidence is In (PDF), which conveys the message to patients that trauma-focused psychotherapy has the best evidence for successfully treating PTSD. With eye-catching graphics and a direct message, the infographic is a quick way for Veterans to learn about treatment options. A second infographic, called Primary Care: The Best Treatment for PTSD Starts with You (PDF), was developed for primary care providers (PCPs).

Three new animated videos were then developed in response to the updated Guideline, building on an earlier whiteboard series. The videos—on Eye Movement Desensitization and Reprocessing (EMDR), medications supported by the Guideline, and PTSD and the brain—will debut on the National Center’s website in FY 2018.

One of the most successful ways the National Center has promoted the understanding of the impact of treatments is through an online gallery called AboutFace, which debuted in 2012. Videos on the site feature Veterans, family members, and providers who all talk directly about how treatment for PTSD has turned Veterans’ lives around. Topics focus on how treatment has reduced Veterans’ symptoms, improved their quality of life, and helped them forge better relationships with friends and family members. The site was completely redesigned in FY 2017, and now gives viewers better access to the videos and enables filtering and searching by topic.
Self-Help and Treatment Companion Resources

The National Center has long been at the forefront in creating tools that people can use to support their mental health and well-being, either on their own or with the assistance of a provider. Since the launch of the award-winning PTSD Coach in 2011, the National Center has released 15 mobile apps, all available for free to users worldwide.

Two new apps were released in FY 2017: the AIMS (Anger and Irritability Management Skills) app (Apple | Android), based on the VA online course Anger and Irritability Management Skills, can be used by anyone coping with anger problems. STAIR Coach is an app for people participating in Skills Training in Affective & Interpersonal Regulation (STAIR), an evidence-based psychotherapy designed to improve emotion regulation. Also released were next-generation versions of PTSD Coach, PE Coach, and CBT-I (Cognitive-Behavioral Therapy for Insomnia) Coach. In a continuing effort to establish parity among platforms, four mobile apps were released on the Android platform in FY 2017.

The Military Sexual Trauma (MST) Recovery App is under development by a team of investigators from the Women’s Health Sciences Division in Boston, Massachusetts, and the Dissemination and Training Division in Palo Alto, California. This app is designed for both male and female survivors of MST experiences and is focused on promoting recovery.

Although not intended as a replacement for mental health care, the app can be used independently or in conjunction with psychotherapy.

In parallel with the development of the STAIR app, National Center experts built WebSTAIR, 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. National Center investigators are recruiting study participants to determine WebSTAIR’s effectiveness with varying levels of coaching support. Recruitment efforts are focusing on women Veterans with MST living in rural areas. The project is being evaluated in terms of effectiveness and implementation. A public version of the site is expected to be available on the National Center’s website in FY 2018.

Two new online courses designed to help family members have been completed and are also expected to be released in FY 2018. These courses are adaptations of CRAFT (Community Reinforcement and Family Training), an empirically supported treatment that is intended to help family members cope more effectively with a Veteran’s symptoms of PTSD and addiction, respectively, and to help them encourage their loved one to enter treatment.

The National Center for PTSD’s efforts to foster self-help and to improve interpersonal relationships also extend to face-to-face programs. WoVeN (Women Veterans Network), led by the Women’s Health Sciences Division
in collaboration with the Boston University School of Medicine, aims to create a sustainable network for women Veterans that focuses on fostering personal connections. WoVeN also launched a website in FY 2017. In addition to community-building activities, the site includes educational content relevant to women Veterans who want to learn more about mental health and ways to get care including information about PTSD and MST. WoVeN is funded by a Walmart Foundation grant to the Boston University School of Medicine.

Educational Resources for Professionals

The PTSD 101 series has long been the National Center’s flagship continuing education (CE) offering. The series, which offers free CE credits, comprises more than 30 hour-long courses. Four new courses were created in FY 2017 and will be live in FY 2018: Shared Decision-Making for PTSD, Cognitive-Behavioral Conjoint Therapy for PTSD, Treating PTSD and Suicide Risk, and PTSD: From Neurobiology to Treatment. Many National Center CE courses are available through TRAIN (TrainingFinder Real-time Affiliate Integrated Network), thus enabling investigators and providers who work outside the VA system to access the courses as well and to earn CE credits.

For providers within VA, the National Center partnered with Women’s Health Services to create Providing Trauma-Sensitive Medical Care to Women Veterans. Available as a 60-minute course or as a brief overview, the course covers ways traumatic experiences can affect women Veterans’ presentation in the medical setting, some unique issues they may create for their medical care, and steps medical providers can take to become more sensitive to trauma-specific needs. The course also covers issues such as how to respond to disclosure of trauma, and strategies for preventing and managing trauma-related reactions during appointments.

The National Center also released three toolkits for professional audiences:

- **The Police Officer Toolkit: PTSD and Military Veterans** aims to help police officers interact more effectively with Veterans who have PTSD. The toolkit also offers strategies for coping with traumatic stress in oneself or when dealing with colleagues in law enforcement.

- **The Clergy Toolkit** is a resource for those who provide pastoral care to Veterans with PTSD.

- **The Provider Self-Care Toolkit** includes education and resources to help mental health care providers deal with professional burnout and secondary traumatic stress. Related information is available in a companion course, **Provider Strategies for Coping with Burnout and Secondary Traumatic Stress**.

During FY 2017 the **Community Provider Toolkit** was enhanced with sections focusing on using technology.
in care and on treatment of Lesbian, Gay, Bisexual, and Transgender (LGBT) Veterans. User research and concept development for a revised version of the Community Provider Toolkit was also completed in FY 2017.

PILOTS (Published International Literature on Traumatic Stress)

The Published International Literature on Traumatic Stress (PILOTS) database was created at the National Center in 1989, shortly after the National Center was founded and well before the internet was established as a research tool. PILOTS provides free, online access to an international, cross-disciplinary collection of journal articles, reports, books, and dissertations on psychological trauma and its consequences. Although the primary audience for PILOTS is clinicians and investigators, the database is also used by students, the media, and the general public. Users can download the full text of articles written by National Center staff members, which also serves to increase the reach of the Center’s research.

In FY 2017 PILOTS had over 59,000 records, and users ran more than 20 million searches in the database.

PILOTS offers a custom thesaurus focused on PTSD and trauma, and thorough notation of psychological scales and measures, enabling searchers to efficiently and precisely navigate the abundant scholarly literature related to PTSD accessible through the database.

In FY 2017 PILOTS had over 59,000 records, and users ran more than 20 million searches in the database. To keep pace with the growth of academic publishing, PILOTS began adding in-process records, allowing new records to be uploaded and searched prior to full indexing. The Resource Center staff, which produces the PILOTS database, also began offering weekly email alerts to VA employees of new PTSD publications, thus saving clinicians’ time as well as assisting VA staff in staying up-to-date with the latest literature.

Support for Providers in the Field

Beginning in 2008 with the national training initiatives for CPT and PE, the National Center launched the VA PTSD Mentoring Program, designed to promote best practices in the clinical and administrative components of specialty care. The program connects PTSD program directors with seasoned PTSD professionals within their regions who act as mentors. This year the Mentoring Program developed the online PTSD Clinical Team Director Course (available in TMS) to foster the utilization of effective practices on the administrative side of PTSD clinics. Through this new initiative, Mentoring Program staff work with program directors to help them meet the increased demand for treatment by restructuring existing programs and implementing best practices.

Complementing these national efforts, the Executive Division in White River Junction, Vermont, with support from VHA Office of Rural Health, is expanding its program that uses academic detailing and facilitation to improve the treatment of Veterans in rural New England (VISN 1).
In FY 2017 a clinical pharmacist and psychologist started working on disseminating the recommendations in the revised VA/DoD Clinical Practice Guideline for PTSD to prescribing clinicians. The goal is to foster the provision of evidence-based PTSD care including increasing referrals to effective psychotherapy and reducing the prescribing of benzodiazepines for PTSD. The program is also developing an online rural provider dashboard and a rural provider toolkit to support VA providers working in rural clinics.

The PTSD Consultation Program began in 2011 with the mission of connecting VA providers with expert PTSD consultants via phone or email, and was expanded in 2015 to offer consultation and resources to community providers outside VA who see Veterans with PTSD. The effort to reach more providers has been supported by a targeted web-based and direct mail marketing campaign. Consultation requests from community and VA providers grew by 50 percent in the past year, with a total of over 2,100 consultations completed; approximately a quarter of all requests came from outside VA. The Consultation Program continues to offer a well-attended monthly webinar series with topics based on questions coming into the program.

The Practice-Based Implementation Network (PBI Network) is a network of VA PTSD field sites and individual clinicians collaborating with the National Center to test new practices and approaches to implementation. In FY 2017 the PBI Network piloted a learning collaborative to train and support clinicians as they integrated new phone and internet technologies into their practices. The Technology Community of Practice developed for the initiative brought together providers and experts in both mobile apps and online programs, and in December 2017 will become an ongoing resource for providers across VA.

Monthly calls highlight new releases, such as the updated version of CBT-I Coach and a clinical dashboard to support care, and allow providers to ask experts questions as well as share their own experiences and knowledge. The development of additional implementation materials—such as handouts for family members supporting loved ones in therapy—is underway in an effort to continue to respond to provider requests and to improve implementation with Veterans.

The PTSD Clinician’s Exchange, the National Center’s practitioner registry, continues to link participating treatment providers in VA, DoD, and the general community with practical training and resources related to 25 best practices. The goal is to increase providers’ familiarity with these practices and enhance their perceptions of benefit to patients. In the past year the registry has also been accessed by a network of subject matter experts to respond to clinician inquiries about specific best practices.
The National Center partnered with quality improvement programs in the Office of Mental Health and Suicide Prevention and with the Office of Strategic Integration | Veterans Engineering Resource Center (OSI|VERC) to develop Modeling to Learn, a nationwide online quality improvement training program for multidisciplinary frontline addiction and mental health teams. The aim of the program is to expand Veterans’ access to treatments most likely to prevent chronic impairment, relapse, suicide, and overdose.

Modeling to Learn empowers teams to evaluate trade-offs among critical priorities and to identify local quality improvement strategies that best utilize existing staff resources. The program includes an online SharePoint site with tools to review team data and online system dynamics models that help teams develop improvement plans. Another key component is a workshop series that enables participating psychiatrists, psychologists, social workers, nurses, counselors, and certified peer support specialists to earn CE credits in their field of practice.

Communication Stats at a Glance

- Over 8 Million Website Views
  - www.ptsd.va.gov

- 138,252 Facebook Followers

- 34,443 Twitter Followers

- 223,677 Newsletter Subscribers

- 40,485 Newsletter Subscribers

- 52,915 Newsletter Subscribers

- 303,198 Downloads of 16 Mobile Apps

- Over 1 Million App Downloads Since 2011, when first VA app (PTSD Coach) released
About the National Center for PTSD

History

The National Center for PTSD was created in 1989 within the U.S. Department of Veterans Affairs 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 center of excellence 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 centers of excellence across the United States, with headquarters in White River Junction, Vermont. Two Divisions are located 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 Office of Mental Health and Suicide Prevention (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
- It has seven Divisions across the U.S., each with a distinct area of focus
- The National Center had 136 externally funded studies and 422 publications in FY 2017
Leadership in Fiscal Year 2017

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
Acting Deputy Executive Director and Deputy for Education, Executive Division, VT
Associate Professor of Psychiatry, Geisel School of Medicine at Dartmouth

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

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

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

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
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Boston University School of Health

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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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White River Junction VA Medical Center

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Lisa A. Marsch, PhD
Center for Technology and Behavioral Health, Dartmouth Psychiatric Research Center, Geisel School of Medicine at Dartmouth

David S. Riggs, PhD
Center for Deployment Psychology, Uniformed Services University of the Health Sciences
Appendix A:
Fiscal Year 2017 Research Narrative

Behavioral Science Division
The Behavioral Science Division in Boston, Massachusetts, conducts research on adjustment after military deployment, assessment methods, genomic and neuroscience mechanisms linked to psychopathology, and innovative approaches to clinical intervention and treatment delivery.

Prospective Cohort Studies
Division researchers are working on two large prospective cohort studies that collect information from strategically selected groups of people over time. The first, Project VALOR (Veterans After-Discharge Longitudinal Registry), is working with a registry of 1,649 male and female combat Veterans who became users of Department of Veterans Affairs (VA) services after 2002. The project collects data about health outcomes associated with posttraumatic stress disorder (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, traumatic brain injury (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.

Biomarkers
Biomarker (measurable biological factors) research at the Division includes a rapidly growing portfolio of genetic and neuroimaging studies, working with collaborators such as the Translational Research Center for TBI and Stress Disorders (TRACTS) Center of Excellence, the National PTSD Brain Bank, the Psychiatric Genomics Consortium (PGC), and the Enhancing Neuroimaging Genetics through Meta-Analysis (ENIGMA) PTSD Working Group. During FY 2017, Division investigators contributed to the largest neuroimaging study of PTSD conducted to date (see Duncan et al., 2017). They also found evidence in both blood and brain tissue that suggests a role for inflammation in the pathophysiology of PTSD; and they published findings consistent with the accelerated-aging hypothesis that addresses the biological impact of PTSD.

Other Division investigators are examining biomarkers of PTSD and blast-related TBI in Veterans of Iraq and Afghanistan war zones. Through this research, investigators aim to clarify the relative contribution of mild TBI and psychiatric conditions to various deficits experienced by military personnel with blast injury, as well as long-term negative consequences such as neurodegenerative disease. The biomarkers are drawn from structural and functional neuroimaging, epigenetic indicators, candidate genes, and examination of polygenic risk.

Recent published work has identified genes that moderate hippocampal volume in mild TBI and PTSD. Other published and in-progress work has examined how risk for Alzheimer’s disease and Parkinson’s disease moderates cortical thickness and volume following mild TBI. Future work will examine blood-based biomarkers such as those associated with neuronal injury and inflammation.

Division investigators are using functional and structural magnetic resonance imaging (MRI) to identify neural circuitry involved in PTSD. Structural MRI data point to specific hippocampal subfield volumes that are negative correlates of PTSD and that may play a role in the persistence of PTSD symptoms. Additional work is being conducted to examine the relationship between hippocampal subfield volume and overgeneralization of memory in PTSD. Data from functional MRI projects also suggest reduced function in specific brain regions within the prefrontal cortex during attempts at memory suppression. This finding identifies a possible...
mechanism for intrusive thoughts in PTSD that might be targeted in treatment.

**Treatment Research**

The Division continues to conduct pioneering research on treatments for PTSD, with the key aims of overcoming barriers to seeking care, reducing dropout, and increasing efficiency of care delivery. A prime example is the internet-based treatment VetChange, designed for Iraq and Afghanistan combat Veterans who report 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 goal of finding approaches that require less professional staff time and that are easier for patients to complete. A prime example is a five-session Prolonged Exposure (PE)–based treatment for PTSD that has shown strong effects with non-Veteran patients. Current and planned studies are testing whether this brief intervention is as effective as Cognitive Processing Therapy (CPT), and whether it can be implemented successfully with Veterans and active-duty Servicemembers.

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 families. Positive clinical trials have been published; and the interventions are being implemented at multiple sites in the VA health care system and on one military installation. A new pilot study is planned that will adapt and test one of these programs for use in an underserved urban civilian setting.

In the area of complementary interventions, a five-year study has begun examining the impact of two active 12-week treatments on chronic pain in Gulf War Illness. In this project, Tai Chi, a mind-body exercise associated with both physical and mental health benefits, is compared with a wellness promotion group that is based on VA’s Whole Health approach. Manuals for both group treatments have been developed, and the first cohort of Veterans has begun the interventions.

Division investigators are also examining a phenomenon termed later-adulthood trauma reengagement (LATR), in which older combat Veterans actively reengage with wartime memories in an effort to build coherence and/or to find meaning in the experience. It is theorized that the LATR process may either lead to growth and positive outcomes or result in negative outcomes such as increased symptomatology. A current study of LATR is examining the utility of a 10-week psychosocial discussion group for older combat Veterans who report experiences consistent with the LATR process. Three cohorts are complete, and recruitment for the fourth cohort will begin in early 2018.

Lastly, Division investigators are evaluating evidence-based psychotherapy programs operating under the VA Boston PTSD Clinic. Recent findings demonstrated that changes in clinic intake procedures are associated with increased rates of retention in evidence-based psychotherapies.

**Assessment**

Data collection is underway on a study designed to validate a cutoff score for PTSD status based on the most recent version of the Primary Care Screen for PTSD for DSM-5 (PC-PTSD-5) for the Diagnostic and Statistical Manual of Mental Disorders—Fifth Edition (DSM-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 project recruits Veterans from VA primary care locations and uses the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5) as the criterion index. The study will also explore the extent to which the optimal PC-PTSD-5 cutoff score varies across subgroups of Veterans and will provide initial information about the acceptability of the screening measure for these patients.

A recent study evaluated Restructured Form scales from the Minnesota Multiphasic Personality Inventory-2 (MMPI-2) as predictors of PTSD-related outcomes. One paper based on this work demonstrates that the MMPI-2 Restructured Form scales can differentiate high PTSD symptom severity alone from high severity accompanied by dissociation—a difference that has implications for treatment decisions. A second paper provides formal psychometric support for the utility of the Dissociative Subtype of PTSD Scale (DSPS) in a clinical sample of Veterans. Data collection is also underway for an investigation into the utility of the MMPI-2 Restructured Form scales in relation to chronic pain and treatment outcomes for Veterans who receive care in a VA pain clinic.

Division investigators are collaborating with research teams from the MITRE Corporation and MIT Lincoln Laboratory to develop a nonintrusive method of PTSD detection that utilizes voice analysis. This work uses neurocomputational modeling to identify vocal markers based on timing and coordination of speech to determine the presence and severity of PTSD. The nonintrusive nature of this approach increases its potential for real-world application.
Another ongoing project is designed to inform postmortem donor classification for the VA National PTSD Brain Bank. Data are being collected from living elderly Veterans to determine their status for PTSD and comorbid disorders; this criterion information is then used to evaluate the predictive potential of information obtained from an informant interview and medical record review. The goals are to determine the best predictors from indirect sources and to provide an assessment template for use by the PTSD Brain Bank.

Epidemiology and Risk/Resilience

A collaborative project with investigators from VA Boston Healthcare System takes a lifespan, multidisciplinary approach to studying the impact of military service. This effort has facilitated research and advanced the traumatic stress field through creation of a website that provides information about military service variables found in a large number of publicly accessible longitudinal data sets. Research facilitated by this effort is reported in the forthcoming book Long-Term Outcomes of Military Service: The Health and Well-Being of Aging Veterans.

Clinical Neurosciences Division

The Clinical Neurosciences Division in West Haven, Connecticut, focuses on research designed to uncover biomarkers (measurable biological factors) of disease mechanisms, as well as on clinical research that investigates paradigms of risk and resilience. The Clinical Neurosciences Division utilizes an interdisciplinary approach that includes neuroimaging, treatment, genetics, and epidemiological studies targeted at translating discoveries from the lab into interventions for treating posttraumatic stress disorder (PTSD) and comorbid conditions.

Neuroimaging Studies

Clinical Neurosciences Division Investigators are working to characterize biochemical, structural, and functional abnormalities underlying PTSD. This body of work suggests connections between how the nervous system and brain, in particular, respond to extreme stress. Investigators are also working on the integration of neuroimaging and genomics to understand how genetic and environmental influences come together to create unique phenotypes of PTSD. Other work includes projects using advanced machine-learning methods and artificial intelligence (AI) to investigate disruptions in brain network circuitry.

Neurochemical & Molecular Brain Imaging

A recent body of research, conducted by Clinical Neurosciences Division researchers and Department of Veterans Affairs (VA)’s National Posttraumatic Stress Disorder Brain Bank (PTSD Brain Bank), strongly points to alterations in the glutamatergic and glucocorticoid (cortisol) systems that underlie brain network impairment and dysfunction in PTSD. Research using positron emission tomography (PET) technology has shown that mGluR5 (metabotropic glutamatergic receptors) may be a promising treatment target in depression and PTSD, as it plays a role in the modulation of glutamate neurotransmission.

Studies have shown that mGluR5 is present in higher levels in trauma survivors with PTSD compared to those without PTSD; mGluR5 density is highest in the hippocampus and putamen, two brain regions that hold specific relevance for PTSD. Additional pilot data found that mGluR5 is even higher in PTSD patients with comorbid suicidal ideation. Investigators have also demonstrated that mGluR5 availability is related to glutamate levels in stress-related psychopathology as well as to changes following drug administration, suggesting that normalization of glutamate neurotransmission by modulating mGluR5 may be an important component of successful treatment. Investigators are building on findings from animal work showing that glucocorticoids can modulate the glutamatergic system; these efforts could increase understanding of the neurobiology of PTSD and provide novel targets for treatment development.

Investigators continue to study neuroinflammatory processes in PTSD using PET technology. Prior work has indicated a link between immune alterations and PTSD following trauma exposure; and investigators are now studying whether activation of microglial cells contributes to PTSD pathogenesis. Preliminary data have been collected to evaluate the role of activated microglia in mediating PTSD expression. Other work aims to study the relationship between peripheral inflammatory markers such as TNF-α (tumor necrosis factor alpha) and trauma-related symptoms. By characterizing the type and extent of neuroinflammation in PTSD, it may be possible to uncover new targets for treatment with anti-inflammatory agents; findings may also inform new research evaluating long-term effects of increased inflammation that occur in response to chronic stress. Additionally, pilot data collected in a second project of PTSD and arterial inflammation is currently undergoing analysis, and may contribute to efforts to reduce cardiac mortality in PTSD patients.

Additionally, investigators are conducting preclinical and clinical studies to measure synaptic density alterations in PTSD and in other trauma- and stress-related disorders. They are using a PET tracer for SV2A (synaptic vesicle glycoprotein 2A), which is a likely biological marker of brain synaptic plasticity (the ability of the brain to reorganize synaptic connections in response to learning or from injury). The SV2A tracer is an extremely valuable tool, as stress-related
Synaptic loss is believed to be an essential contributor to PTSD pathophysiology, treatment failure, and functional impairment. The next phase of this work will include a clinical study with nonhuman primates, as well as clinical participants with depression and PTSD, to evaluate changes to synaptic density following the administration of ketamine, a medication that affects the glutamate system. This study is building on prior preclinical work showing that damage to synaptic connections caused by chronic stress is rapidly reversed by ketamine.

**Structural and Functional Brain Imaging**

Sophisticated functional and structural neuroimaging are important tools used to study brain metabolism and brain circuitry in PTSD. Recent findings from this work have shown that global brain connectivity is a potential marker for stress-related dysfunction and a possible target for treatment. Studies have also found that disruptions between neural pathways in the anterior hippocampus—an area involved in forming, organizing, and storing memories—is associated with higher PTSD severity.

Data from projects that characterize brain circuitry using EEG (electroencephalography) testing and fMRI (functional magnetic resonance imaging) have shown that decreased hippocampal volume in patients with PTSD is associated with reduced functional connectivity in other areas of the brain. Additional imaging research includes the study of neuroanatomical correlates of abnormal fear regulation, information processing, and decision-making in the context of ambiguity and risk in patients with PTSD.

**Morphometric Brain Imaging**

The Clinical Neurosciences Division has been largely concentrated on studies of overall volume of these brain regions, recent studies by Clinical Neurosciences Division researchers have utilized novel morphometric and subfield approaches to localize PTSD-related atrophy within specific regions within the hippocampus and amygdala. Further work is using high-resolution MRI to study the association between cortical thickness and suicidal ideation in combat-exposed Veterans. Preliminary analyses suggest that suicidal ideation may be associated with altered cortical thickness in brain areas key to the neurobiology of PTSD, and may serve as a potential biomarker for increased risk of suicidality.

**Treatment Research**

Investigators have previously shown that ketamine has rapid antidepressant effects that are associated with changes in the brain’s functional connectivity, thus improving neuroplasticity. Researchers are now testing the therapeutic effects of ketamine in a PTSD population over longer periods of time to study the durability of treatment response in PTSD. Data from this study is also examining ketamine’s potential procognitive and anti-suicidal effects in PTSD. Additional work includes a study to evaluate ketamine’s potential to augment the treatment effects of Prolonged Exposure (PE) therapy to determine whether improved neuroplasticity can positively affect fear inhibition and memory reconsolidation.

Researchers continue to explore intervention strategies that might improve fear extinction among trauma survivors who do not respond to standard treatment approaches. One such avenue of work includes the use of real-time fMRI neurofeedback. Resting-state functional connectivity (that is, regional changes in brain activity when the brain is not involved in a task) data from an fMRI neurofeedback project revealed that neurofeedback led to changes in brain connectivity during traumatic memory recall that were consistent with clinical improvement. Investigators will continue to study the clinical utility of this emerging technique in the treatment of PTSD.

Other pharmacotherapeutic agents currently under study include riluzole, a glutamate modulating agent; the immunosuppressant rapamycin; and neuropeptide Y, an endogenous neuropeptide.

**Genetic and Molecular Studies**

The Clinical Neurosciences Division is a major contributor to the field of genetics, utilizing neurogenomics to explore interactions among genotypes, phenotypes, and the environment via a range of bioinformatic approaches. Using tissue from the PTSD Brain Bank, investigators have shown that a specific gene—SGK1 (serum and glucocorticoid-regulated kinase 1)—that is expressed at lower levels in people with PTSD, was also lower in stressed animals, and that overexpressing this gene in animals made them more resilient to stress. Ongoing efforts include studying SGK1 as a potential marker for PTSD and investigating strategies for raising SGK1 levels in the brain as a potential new treatment. Several other genes of interest—including FKBP5 (FKS06 binding protein 5) and NPAH4 (neuronal PAS domain protein 4)—have also been targeted in reverse transcription polymerase chain reaction analysis, a technique used to detect Ribonucleic Acid (RNA) expression.

Researchers have recently teamed with experts in high-level computational analyses to examine thousands of gene expression changes and DNA methylation in hundreds of subjects. This combined effort has led to identification of major networks of gene expression in PTSD patients—as compared with patients who have major depressive disorder and with control subjects—as well as alterations in single genes of interest in individuals with PTSD. Further bioinformatics
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studies are expected to result in identification of key network and hub genes that contribute to PTSD pathophysiology.

Clinical Neurosciences Division investigators continue to participate in the ongoing Million Veteran Program (MVP)Investigators recently completed a genome-wide association study (GWAS) in approximately 150,000 subjects, evaluating how genetic and environmental influences (phenotypes) come together to affect symptom reexperiencing. Work was also conducted on an epigenome-wide association study (EWAS) of PTSD in 1,135 Veterans—including both dimensional and categorical measures of PTSD as well as subphenotypes of reexperiencing, avoidance, numbing, and dysphoric and anxious arousal. Once finalized, this project will be the largest EWAS of PTSD conducted to date. Preliminary results suggest that the UPS48 (ubiquitin-proteasome system 48) gene, which is involved in the regulation of NF-κB-activation (nuclear factor kappa-light-chain-enhancer of activated B cells), plays an important role. NF-κB-activation is a key regulator of inflammation, which is also implicated in synaptic plasticity and memory.

Epidemiological Studies

Investigators are continuing to study the link between the neurobiology and epidemiology of PTSD. Several new studies were conducted in FY 2017 using data from the National Health and Resilience in Veterans Study (NHRVS) and the World Trade Center (WTC) Health Program. Recently published reports have examined questions on public health relevant to Veterans including factors that protect against the development of suicidal thinking, the role of attachment style in moderating effects of FKBP5 polymorphisms and childhood abuse in predicting PTSD symptoms, a comparison of International Classification of Diseases 11 (ICD-11) and DSM-5 criteria for PTSD, and trajectories of posttraumatic growth.

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.

Patient Needs and Preferences

Several projects are aimed at developing and evaluating strategies to quickly identify patient needs, patients at risk, and patient preferences. A Health Services Research & Development Service 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 related to patient needs will develop and cross-validate a risk-screening tool that identifies patients at risk for subsequent mental health problems. The study will focus on racial and ethnic minority patients who have been found to experience disparities in trauma exposure and mental health care.

Dissemination and Training Division investigators, working with collaborators at the Women’s Health Sciences Division, completed research and evaluation work on screening and treatment for military sexual trauma (MST). The Dissemination and Training Division is also participating with the Executive Division to validate the Primary Care PTSD Screen for DSM-5 (PC-PTSD-5).

Implementation Research

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 on Cognitive Processing Therapy (CPT) is evaluating competing strategies intended to enhance and sustain the delivery of a PTSD treatment: 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 evaluating the national rollout for Prolonged Exposure (PE) are investigating the effectiveness of different training models on trainee delivery of PE.

In collaboration with the Minneapolis Department of Veterans Affairs (VA) Medical Center, investigators completed a study identifying organizational factors that differentiate whether VA PTSD clinics have high or low usage of evidence-based psychotherapies. This project led to a new study that will take place in FY 2018, led by Minneapolis VA with co-investigators at two National Center Divisions, to test an implementation toolkit in VA PTSD clinics. The project also led to approval of a new multisite study to 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.

New efforts are underway to improve patient access to care, including reduced patient wait times, by using participatory systems dynamics: a collaborative stakeholder model in which specific system problems are identified, changes are proposed,
and the impact of the change on the outcome of interest is predicted in a data-driven fashion. The team is hoping to secure funding to assess the cost-effectiveness of this approach and to test its mechanisms of action.

A long-term project is the development of a practitioner network across both VA and Department of Defense (DoD) that can test strategies for implementing best practices. The network is currently engaged in quality improvement projects, but can also become a resource for implementation science research in the future. Lastly, a study that focuses on assessing and increasing implementation of many core elements of the VA/DoD Clinical Practice Guideline for PTSD in all three service delivery sectors (VA, DoD, and the general community) is nearing completion.

**Treatment Research**

Dissemination and Training Division investigators are conducting several trials that evaluate patient outcomes in treatments adapted for use in a variety of settings and under a variety of delivery methods. A hybrid effectiveness and implementation study will compare two non-trauma-focused treatments delivered to women Veterans in their homes via video teleconference: Skills Training in Affective and Interpersonal Regulation (STAIR), which is an 8-session individual treatment for a variety of patients with PTSD), and Present-Centered Therapy (PCT), which is a non-trauma-focused therapy that focuses on current life problems related to PTSD. The goals of the study are to assess the relative effectiveness of these treatments, and to identify barriers and facilitators for using video to deliver treatment.

The efficacy of a web version of PE (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 large multisite clinical trial is now evaluating the effectiveness of flexibly delivered STAIR plus PE among civilian public sector women, and will examine how variations in delivery affect patient outcomes. Lastly, investigators are evaluating adaptive changes in cardiac autonomic status, physical activity, social cognition, and social interaction in real time among Veterans participating in VA’s Service Animal Training Intervention program.

**Technology-Based Treatments and Treatment Delivery**

Several ongoing studies are assessing the benefits of phone- and web-based technologies to increase Veteran access to mental health care and to enhance outcomes. Following two successful pilot studies of the PTSD Coach mobile app, a new project will 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 underway 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. The first investigation of Moving Forward (an online problem-solving intervention for Veterans that teaches skills for overcoming stressful problems and helps them meet their goals) has been completed, with Veterans reporting less avoidance of problem solving as well as greater satisfaction with the online course when helped by a peer mentor.

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, is being investigated in a study of another highly stressed population: cancer survivors.

**Evaluation Division**

The Evaluation Division in West Haven, Connecticut, supports the National Center’s mission through a programmatic link with Department of Veterans Affairs (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 programs including those for specialized treatment of posttraumatic stress disorder (PTSD).

**Program Monitoring and Evaluation**

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. Although NEPEC is primarily engaged in evaluation research, it also works on
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independent research projects related to the treatment of PTSD.

Prospective Cohort Studies
Recruitment has finished for the Survey of Returning Veterans (SERV) study, which is a repeated panel study of gender differences in psychiatric status and functioning among OEF/OIF/OND (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 have begun, and 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.

Treatment Research
The Evaluation Division continues research on PTSD health service 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 evidence-based treatments (EBTs)—Prolonged Exposure (PE) and Cognitive Processing Therapy (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 have been published on medication used for the treatment of PTSD, as well as on correlates of self-reported PTSD symptom severity scores over time. During FY 2018, the Evaluation Division will further examine the role of pain in specialized PTSD treatment and in the treatment of comorbid disorder, and will continue publishing results from the SERV interviews. The national Psychotropic Drug Safety Initiative (PDSI) has entered its fourth year and has been tracking data on changes in practice in prescribing for PTSD. The Evaluation Division continues its work with technical advisors at the PTSD Mentoring Program and at the OMHSP to provide technical assistance, and 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 (EBPs).

The Measurement-Based Care (MBC) in Mental Health Initiative, which was formally launched by OMHSP in June 2016, completed its first year of work; and 58 facilities and 179 mental health clinics were enrolled as Champion Sites for implementing 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 have 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. As the Initiative moves into its second year, NCPTSD members will continue to be active participants as investigators and as Initiative leaders.

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 Department of Veterans Affairs (VA)’s National Posttraumatic Stress Disorder (PTSD) Brain Bank.

Treatment Research
The Executive Division has a long history of participation in VA’s Cooperative Studies Program (CSP). During FY 2017, enrollment continued for CSP #591, a groundbreaking study comparing Prolonged Exposure (PE) and Cognitive Processing Therapy (CPT). The study is expected to reach the enrollment goal of 900 Veterans at 17 sites across the country in early 2018. Findings will help VA leadership, clinicians, and Veterans
make informed choices about the delivery of PTSD care in VA, and also will be broadly relevant to the scientific and clinical communities outside VA.

In collaboration with the Behavioral Science Division, the Executive Division is leading a study to provide further validation of the Diagnostic and Statistical Manual of Mental Disorders—Fifth Edition (DSM-5) version of the Primary Care PTSD Screen for DSM-5 (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 Clinician-Administered PTSD Scale for DSM-5 (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.

Investigators continue to focus on issues that frequently co-occur with PTSD. Follow-up assessments have been completed for a trial looking at cognitive-behavioral therapy (CBT) along with usual outpatient addiction care compared with usual care alone for Veterans with PTSD and substance use disorders; analyses are underway. Data collection for a second trial comparing two psychotherapies for comorbid alcohol use disorder and PTSD (PE and Seeking Safety) will be completed during winter 2018. A new trial evaluating the combination of topiramate and PE for co-occurring PTSD and alcohol use disorder has been funded; recruitment launched in November 2017. 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 (STMS) for PTSD with comorbid depression. 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.

Investigators completed a pilot study that evaluated Veterans’ reactions to AboutFace, a web-based video gallery of Veterans with PTSD who share their personal stories about PTSD and how treatment has turned their lives around. Veterans assigned to AboutFace had positive attitudes toward the program and improved attitudes toward mental illness from baseline to the two-week follow-up, as compared with those in a control group.

Implementation Research
The Executive Division continues work on several initiatives aimed at assessing models of care and at improving evidence-based practice. Investigators continue to analyze data and to 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 also 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 providers.

An initiative funded by the Office of Rural Health (ORH) will examine the impact of facilitation and an academic detailing model, in which pharmacists reach out directly to clinicians to improve PTSD treatment practices in rural clinics throughout VISN 1 (VA New England Healthcare System). A published manuscript that focused on the impact of a multifaceted academic detailing program noted improvements in PTSD care consistent with clinical practice guidelines, as well as reductions in prescribing of benzodiazepines, antipsychotics, and prazosin during the educational intervention. These findings suggest that academic detailing and other educational programming can effectively address gaps in quality PTSD care.

In addition to projects aimed at improving clinical practices, investigators are continuing to assess the state of VA care for PTSD. Work is ongoing on a project that applies novel informatics and operational methods to medical and administrative data in order to understand multiple dimensions of quality of PTSD care within VA. As investigators have gained more skills and experience in retrospective data analysis, new projects have been created to understand and compare the effectiveness of evidence-based treatments (EBTs) for PTSD in routine clinical practice.

VA’s National PTSD Brain Bank
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 (USUHS). The PTSD Brain Bank currently has 168 brains, including 56 PTSD brains, and has received commitments of more than 100 additional brains by the end of 2018. Currently, 64 prospective donors (called antemortem donors) have volunteered to be followed over their lifetimes.
Pacific Islands Division

The Pacific Islands Division in Honolulu, Hawaii, was created to advance posttraumatic stress disorder (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 Research

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 Prolonged Exposure (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 (CBCT) for PTSD, and compares home-based care to traditional office-based care. Lastly, a new trial in collaboration with the Dissemination and Training Division is looking at home-based Skills Training in Affect and Interpersonal Regulation (STAIR) treatment for women Veterans who have experienced military sexual trauma (MST).

Specific Populations

Several ongoing studies examine the prevalence of PTSD, response to treatment, and presence of related mental health comorbidities in ethnic minority populations. The 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.

In FY 2017, researchers initiated a study using data from the Honolulu Asian-Aging project, looking 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. Another ongoing project examines sociocultural and community influences on mental health decision-making among male and female African American, Latino, and white Veterans who are starting PTSD care in a Department of Veterans Affairs (VA) mental health clinic; the study is looking at social network influences, individual perceptions of mental health issues, provider expectations and experiences, and treatment preferences. Analyses of a longitudinal cohort study in which patient-reported PTSD symptoms and mental health quality of life were evaluated six months after receipt of a PTSD diagnosis were also completed this year; also examined were racial and ethnic disparities in those clinical outcomes.

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 post-trauma psychopathology.

Biomarkers

Work at the Women’s Health Sciences Division includes studies aimed at explaining the basic biological processes underlying posttraumatic stress disorder (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 study of GABAergic (gamma-aminobutyric acid-ergic) neuroprotective steroids in men and in women across the menstrual cycle; and a series of studies of the gene-environment interplay in the comorbidity of PTSD and eating disorders.

Another biomarker effort is a study of the role of stress-modulating biological factors in reducing symptoms of withdrawal and negative mood during smoking cessation in trauma-exposed individuals with and without PTSD. 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.

Treatment Research

Several intervention studies are examining more efficient treatment formats for Cognitive Processing Therapy (CPT). With support from the South Texas Research Organizational Network Guiding Studies on Trauma and Resilience (STRONG STAR) Consortium, investigators are continuing analysis on 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 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 related studies, Women's Health Sciences Division 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 Prolonged Exposure (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. Analyses are ongoing on two trials examining therapist fidelity and client variables as contributors to changes in PTSD across administrations of CPT, and the role of sleep improvement in aiding recovery from PTSD and depression among survivors of interpersonal violence. Another ongoing intervention examines the effectiveness and fit of a transdiagnostic treatment, the Unified Protocol (UP), 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 the development of a national network of peer-facilitated psychoeducation and support groups for women Veterans who want to improve their well-being. Additionally, filming has begun on a brief mindfulness-based training video that will be used to assist Servicemembers coping with post-deployment intrusive thoughts.

**Gender Differences**

The Women's Health Sciences Division continues its major focus on understanding gender differences in stress, trauma, and related psychiatric outcomes. The Longitudinal Investigation of Gender, Health, and Trauma (LIGHT) study is a national survey of Veterans that is just getting underway, focusing on the impact of trauma and community violence on mental, physical, and reproductive health. The Veterans Metric Initiative (TVMI) is a large-scale longitudinal study—supported through a public-private partnership among Department of Veterans Affairs (VA), DoD, academia, and industry—that is investigating the reintegration experiences and program use of male and female post-9/11 Veterans.

Investigators also continue to analyze data from a study of the effects of deployment stressors and resulting mental health conditions on the occupational and family quality of life over time of female and male post-9/11 Veterans. In a separate large sample of Veterans who had deployed to in Iraq and Afghanistan, investigators recently conducted a gender-stratified examination of suicidal ideation risk models, and found critical gender differences in pathways to suicidal ideation among this cohort.

Work on gender differences also extends to important non-Veteran samples including community members and law enforcement officers exposed to community violence. One prospective study examines gender differences in positive and negative health outcomes within the context of socioeconomic status, racial identity, and prior trauma history. In another series of studies, investigators are establishing a population trauma cohort using the Danish national health and social registries, with a projected sample size of 70,000. Gender differences in longitudinal psychopathology and resilience will be examined, using latent class analyses and machine-learning methodologies.

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 effects of PTSD on later life health and functioning 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.

**Military Sexual Trauma and Intimate Partner Violence**

Exposure to interpersonal violence is a key issue of study at the Women's Health Sciences Division. Research specifically related to military sexual trauma (MST) includes two studies: a qualitative investigation aimed at identifying unique factors associated with sexual trauma that occur within a military context, and a mixed-methods investigation of Veterans’ experiences with and preferences for the universal MST screening program at the Veterans Health Administration (VHA).

The Women's Health Sciences Division is also studying intimate partner violence (IPV), another important issue among female Veterans. Investigators are examining best practices for IPV identification, assessment, treatment, and the targeting of health services within the VHA context. One study will refine and evaluate the effectiveness of a patient-centered brief counseling intervention for women who experience IPV. This study incorporates hybrid methodology to inform expansion of the intervention throughout VA. A new pilot study is identifying best clinical practices for IPV screening programs within VA primary care settings, with the ultimate goal of disseminating these practices to all VA primary care clinics.
## Appendix B: Fiscal Year 2017 Funding

### VA Cooperative Studies Program (CSP)

<table>
<thead>
<tr>
<th>Principal Investigator</th>
<th>Research Title</th>
<th>Years</th>
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<td>Stein &amp; Gelernter (Site PI)</td>
<td>CSP #575B: Genomics of Posttraumatic Stress Disorder</td>
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<td>Schnurr, Chard, &amp; Ruzek</td>
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### Other VA Sources

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<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>CBT for PTSD in Veterans with Co-occurring Substance Use Disorders</td>
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<td>Hamilton &amp; Kimerling (Co-PI)</td>
<td>Enhancing the Mental and Physical Health of Women through Engagement and Retention (EMPOWER)</td>
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<td>Intimate Partner Violence Screening Programs in VHA: Informing Scale-Up and Spread of Best Practices</td>
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<td>Intimate Partner Violence, Health, and Healthcare Use Among Women Veterans</td>
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<td>Recovering from Intimate Partner Violence Through Strengths and Empowerment (RISE): Tailoring and Evaluating a Patient-Centered Counseling Intervention</td>
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<td>Mindfulness Treatment for Anger in Veterans with PTSD</td>
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<td>Using EMA to Assess Aggression Perpetration in Veterans with PTSD and Chronic Pain</td>
<td>PRIME</td>
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<td>CAP-Administrative Core*</td>
<td>VA/DoD</td>
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<td>Kanwal &amp; Kimerling (Co-I)</td>
<td>Care for Women Veterans with Hepatitis C Virus Infection</td>
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### Appendix B: Fiscal Year 2017 Funding

(Other VA Sources Continued)

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<td>Kehle-Forbes</td>
<td>Dropout from Evidence-Based Therapy for PTSD: Reasons and Potential Interventions</td>
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<td>Pilot Test of a Self-Management Program for Completers of Trauma-Focused Therapy</td>
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<td>Knight</td>
<td>LED Light Therapy To Improve Cognitive-Psychosocial Function in TBI-PTSD Veterans</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>Krystal &amp; Abdallah</td>
<td>CAP-Ketamine for Antidepressant-Resistant PTSD: A Translational Neuroscience, Biomarker-Informed Clinical Trial*</td>
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<td>Landes &amp; 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>An Integrative Technology Approach to Home-based Conjoint Therapy for PTSD</td>
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<td>Niles &amp; Nori</td>
<td>Novel Interventions for Gulf War Veterans’ Illnesses</td>
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<td>Scioli-Salter</td>
<td>Neurobiological and Psychological Benefits of Exercise in Chronic Pain and PTSD</td>
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<td>Group CBT for Chronic PTSD: A Randomized Clinical Trial</td>
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<td>An Adjunctive Family Intervention for Individual PTSD Treatment</td>
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<td>Wolf</td>
<td>PTSD-Related Accelerated Aging in DNA Methylation and Risk for Metabolic Syndrome</td>
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### Appendix B: Fiscal Year 2017 Funding

(Other VA Sources Continued)

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<th>Principal Investigator</th>
<th>Research Title</th>
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<th>Years</th>
<th>Current Funding</th>
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<td>Zulman &amp; Kimerling (Site PI)</td>
<td>Making Connections: Tablet-Enabled Telehealth to Enhance Veterans’ Access and Care</td>
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BLR&D Biomedical Laboratory Research & Development Service; CAP Consortium to Alleviate PTSD; CDA Career Development Award; CSR&D Clinical Science Research and Development Service; 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

*Sub-award within the total $21 million CAP award.

### National Institutes of Health (NIH)

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<td>Examining the Effect of Ketamine On Glutamate/ Glutamine Cycling</td>
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<td>Glial and Synaptic Functions in Major Depression</td>
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<td>Agarwal &amp; Gelernter (Site PI)</td>
<td>Psychiatric Genomics Consortium: Finding Actionable Variation</td>
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<td>Imaging Microglial Activation in PTSD Using PET</td>
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## Appendix B: Fiscal Year 2017 Funding

### National Center for PTSD

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<td>Fine Mapping a Gene Sub-Network Underlying Alcohol Dependence</td>
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<td>The Impact of Traumatic Stress on the Methylome: Implications for PTSD</td>
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<td>2016-2020</td>
<td>$559,082</td>
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<td>Taft</td>
<td>Trauma-Focused Partner Violence Intervention</td>
<td>NIH; BU SoM</td>
<td>2017-2017</td>
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<td>Wiltsie Stirman</td>
<td>Leveraging Routine Clinical Materials and Mobile Technology to Assess CBT Quality</td>
<td>NIMH</td>
<td>2017-2021</td>
<td>$696,817</td>
<td>$2,744,506</td>
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<tr>
<td>Wiltsie 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>Wolf</td>
<td>Administrative Supplement to Traumatic Stress and Accelerated Aging in DNA Methylation</td>
<td>NIA</td>
<td>2017-2018</td>
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<td>Wolf</td>
<td>Traumatic Stress and Accelerated Aging in DNA Methylation</td>
<td>NIA</td>
<td>2016-2018</td>
<td>$63,000</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>
<td>$397,000</td>
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**BU SoM** Boston University School of Medicine; **CTSI** Clinical and Translational Science Institute; **K** Career Development Award; **NIA** National Institute on Aging; **NIAAA** National Institute on Alcohol Abuse and Alcoholism; **NICHD** National Institute of Child Health and Human Development; **NIDA** National Institute on Drug Abuse; **NIH** National Institutes of Health; **NIMH** National Institute of Mental Health; **NIMHD** National Institute on Minority Health and Health Disparities
### Department of Defense (DoD)

<table>
<thead>
<tr>
<th>Principal Investigator</th>
<th>Research Title</th>
<th>Years</th>
<th>Current Funding</th>
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<tbody>
<tr>
<td>Keane &amp; Marx</td>
<td>Project VALOR: Trajectories of Change in PTSD in Combat-Exposed Veterans</td>
<td>2012-2017</td>
<td>$0</td>
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<td>Marx &amp; Nock</td>
<td>New Approaches to the Measurement of Suicide-Related Cognition</td>
<td>2014-2017</td>
<td>$0</td>
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<td>McLean</td>
<td>Web-PE: Internet-Delivered Prolonged Exposure Therapy for PTSD</td>
<td>2014-2018</td>
<td>$495,000</td>
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<td>Morland</td>
<td>In-Home Exposure Therapy for Veterans with PTSD</td>
<td>2012-2017</td>
<td>$304,122</td>
<td>$2,499,998</td>
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<td>Norman</td>
<td>Trauma Informed Guilt Reduction (TrIGR) Intervention</td>
<td>2015-2019</td>
<td>$491,798</td>
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<tr>
<td>Ruzek</td>
<td>Randomized Controlled Trial of CBT Training for PTSD Providers</td>
<td>2012-2017</td>
<td>$0</td>
<td>$2,464,704</td>
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<tr>
<td>Shiner</td>
<td>Comparative Effectiveness of Psychotropic Medications for PTSD in Clinical Practice</td>
<td>2017-2020</td>
<td>$11,516</td>
<td>$1,543,904</td>
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<tr>
<td>Sloan</td>
<td>Brief Treatment for PTSD: Enhancing Treatment Engagement and Retention</td>
<td>2015-2018</td>
<td>$842,431</td>
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<td>Taft</td>
<td>Strength at Home Couples Program to Prevent Military Partner Violence</td>
<td>2015-2019</td>
<td>$169,545</td>
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<td>Wachen &amp; Resick</td>
<td>Variable Length Cognitive Processing Therapy for Combat-Related PTSD</td>
<td>2013-2017</td>
<td>$0</td>
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<tr>
<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>
<td>$372,948</td>
<td>$1,491,790</td>
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<tr>
<td>Woodward</td>
<td>Can a Canine Companion Modify Cardiac Autonomic Reactivity and Tone in PTSD</td>
<td>2014-2018</td>
<td>$227,583</td>
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### Other Non-VA Sources

<table>
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<tr>
<th>Principal Investigator</th>
<th>Research Title</th>
<th>Funding Source</th>
<th>Years</th>
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<tr>
<td>Abdallah</td>
<td>Glial and Glutamatergic Deficits In Posttraumatic Stress Disorder</td>
<td>Brain &amp; Behavior Research Foundation</td>
<td>2015-2017</td>
<td>$0</td>
<td>$65,000</td>
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<tr>
<td>Adams</td>
<td>Use of Transcranial Direct Current Stimulation to Enhance Consolidation of Therapeutic Learning in Obsessive-Compulsive Disorder</td>
<td>International Obsessive-Compulsive Disorder Foundation</td>
<td>2017-2018</td>
<td>$48,646</td>
<td>$48,646</td>
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<tr>
<td>Anticevic</td>
<td>Characterizing the Neuronal Mechanisms Behind Cognitive and Motivational Deficits in Psychiatric Disorders</td>
<td>Blackthron Therapeutics</td>
<td>2016-2018</td>
<td>$1,000,000</td>
<td>$2,000,000</td>
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<tr>
<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>
<td>$0</td>
<td>$90,000</td>
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<tr>
<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>
<td>$45,000</td>
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<tr>
<td>Averill</td>
<td>Intrinsic Connectivity Networks and Cognitive Impairment in PTSD</td>
<td>Brain &amp; Behavior Research Foundation</td>
<td>2016-2018</td>
<td>$34,993</td>
<td>$69,993</td>
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<tr>
<td>Cosgrove</td>
<td>Imaging Glucocorticoid and Neuronal Dysfunction in PTSD</td>
<td>Brain &amp; Behavior Research Foundation</td>
<td>2017-2018</td>
<td>$99,998</td>
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Appendix B: Fiscal Year 2017 Funding

(Other Non-VA Sources Continued)

<table>
<thead>
<tr>
<th>Principal Investigator</th>
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<th>Funding Source</th>
<th>Years</th>
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<tr>
<td>Cosgrove</td>
<td>The Dopamine Signature of Cannabis: Imaging Sex Differences</td>
<td>Naratil Pioneer Award</td>
<td>2017-2018</td>
<td>$50,000</td>
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<td>Duman</td>
<td>Antidepressant Actions of a mTORC1 Activator</td>
<td>Navitor Pharmaceuticals</td>
<td>2016-2017</td>
<td>$272,244</td>
<td>$383,229</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>
<td>$82,230</td>
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<tr>
<td>Duman</td>
<td>Cellular Mechanisms Underlying the Antidepressant Actions of GLYX013</td>
<td>Allergan</td>
<td>2016-2018</td>
<td>$246,960</td>
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<td>Duman</td>
<td>Identification and Characterization of Novel Drug Targets for Depression</td>
<td>Tashio Pharmaceuticals</td>
<td>2016-2019</td>
<td>$200,000</td>
<td>$600,000</td>
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<tr>
<td>Esterlis</td>
<td>In Vivo and Postmortem Study of Synaptic Plasticity</td>
<td>Nancy Taylor Foundation</td>
<td>2015-2018</td>
<td>$156,038</td>
<td>$500,661</td>
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<tr>
<td>Feder &amp; Pietrzak</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>
<td>$1,499,736</td>
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<td>Feder &amp; Pietrzak</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>
<td>$3,873,351</td>
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<tr>
<td>Feder &amp; Pietrzak</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>
<td>$2,398,856</td>
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<tr>
<td>Galovski &amp; Street</td>
<td>Women Veterans Network (WoVeN)</td>
<td>Wal-Mart Foundation</td>
<td>2017-2018</td>
<td>$250,341</td>
<td>$469,392</td>
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<tr>
<td>Harpaz-Rotem</td>
<td>Combining Neurobiology and New Learning: Ketamine and Prolonged Exposure: A Potential Rapid Treatment for PTSD</td>
<td>Brain &amp; Behavior Research Foundation</td>
<td>2016-2017</td>
<td>$50,000</td>
<td>$100,000</td>
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<td>Kelmendi</td>
<td>Role of MDMA on Amygdala and Prefrontal Cortex on PTSD</td>
<td>Brain &amp; Behavior Research Foundation</td>
<td>2016-2018</td>
<td>$35,000</td>
<td>$70,000</td>
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<td>Krystal &amp; Abdallah</td>
<td>Examining the Impact of Rapamycin on Ketamine's Antidepressant Effects</td>
<td>Pfeiffer Foundation</td>
<td>2015-2018</td>
<td>$167,000</td>
<td>$500,000</td>
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<td>Krystal &amp; Sanacora</td>
<td>Discovering a New Class of Antidepressants</td>
<td>Gustavus and Louise Pfeiffer Foundation</td>
<td>2014-2017</td>
<td>$167,000</td>
<td>$500,000</td>
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<td>Marx</td>
<td>Mining Biological Cues from PTSD Interview Recordings</td>
<td>Mitre Corporation</td>
<td>2017-2017</td>
<td>$500,000</td>
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<td>McCaslin</td>
<td>Evaluation of the Community Provider Toolkit and Military Culture Training</td>
<td>OGP/Office of Executive Council</td>
<td>2016-2017</td>
<td>$100,000</td>
<td>$200,000</td>
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<td>Monson &amp; Wiltsey Stirman</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>
<td>$728,215</td>
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<td>Petrakis</td>
<td>Effects of Progesterone on Stress-Induced Craving in PTSD and AUD</td>
<td>Brain &amp; Behavior Research Foundation</td>
<td>2016-2018</td>
<td>$99,390</td>
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<td>Sanacora</td>
<td>Exploring the Role of Glial Mediated Glutamate Clearance in Stress Sensitivity and Resiliency</td>
<td>Brain &amp; Behavior Research Foundation</td>
<td>2015-2018</td>
<td>$0</td>
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<td>Sanacora</td>
<td>Utility of NMR as a Translatable Biomarker for the Regulation of Glutamate Neurotransmission Behavioral Effects of Compounds that Influence Glutamate Release</td>
<td>Merck, Sharp, and Dohme</td>
<td>2016-2017</td>
<td>$71,599</td>
<td>$119,211</td>
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<td>Sareen &amp; Pietrzak</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>Taft</td>
<td>Implementation of VA Rollout of Strength at Home</td>
<td>Bob Woodruff Foundation</td>
<td>2016-2017</td>
<td>$72,717</td>
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</table>
Appendix B: Fiscal Year 2017 Funding

(Other Non-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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<tr>
<td>Vogt</td>
<td>The Veterans Metrics Initiative: Linking Program Components to Post-Military Well-Being</td>
<td>Consortium of Public and Private Funding, including VA HSR&amp;D</td>
<td>2015-2020</td>
<td>$1,341,242</td>
<td>$5,914,960</td>
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<td>Walser</td>
<td>Compassion and PTSD</td>
<td>Mind and Life 1440 Award</td>
<td>2014-2017</td>
<td>$0</td>
<td>$14,000</td>
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<tr>
<td>Wolf</td>
<td>The Utility of MMPI-2 RF in Informing VA Pain Clinic Care</td>
<td>University of Minnesota Press, Test Division</td>
<td>2016-2018</td>
<td>$0</td>
<td>$24,000</td>
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CDC Centers for Disease Control; NIOSH National Institute for Occupational Safety and Health; OGP Office of Government-wide Policy; PCORi Patient-Centered Outcomes Research Institute

Pending Research Projects

<table>
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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>Carlson</td>
<td>Pilot Study of Standalone and Peer Supported Online Problem Solving Program in Veterans with Untreated Mental Health Problems</td>
<td>VA HSR&amp;D</td>
<td>2017-2018</td>
<td>$100,000</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>
<td>VA HSR&amp;D</td>
<td>2017-2021</td>
<td>$1,094,820</td>
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<td>Galovski &amp; Kehle-Forbes</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>
<td>$1,099,343</td>
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<tr>
<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>
<td>VA HSR&amp;D</td>
<td>2018-2021</td>
<td>$987,800</td>
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<td>Hayes</td>
<td>Fear Generalization and Hippocampal Subfields in PTSD</td>
<td>Brain and Behavior Research Foundation</td>
<td>2018-2020</td>
<td>$70,000</td>
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<td>Hayes</td>
<td>Neuroimaging and Molecular Markers of AD and Neurodegenerative Disease after Concussion</td>
<td>NIA</td>
<td>2018-2023</td>
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<td>Kimerling</td>
<td>Development of a Patient-Reported Measure to Assess Healthcare Engagement</td>
<td>VA HSR&amp;D</td>
<td>2017-2020</td>
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<td>Krystal</td>
<td>CSP 2016: Adaptive Clinical Trial for Insomnia in Veterans with PTSD (ACTIVE-PTSD)</td>
<td>VA CSP</td>
<td>TBD</td>
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<td>McLean &amp; Rosen</td>
<td>Targeted Strategies to Accelerate Evidence-Based Psychotherapies Implementation in Military Settings</td>
<td>DoD</td>
<td>2017-2021</td>
<td>$8,265,060</td>
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<td>Pineles</td>
<td>An Electrophysiological Predictor of SSRI Response in Veterans with PTSD</td>
<td>VA CSR&amp;D</td>
<td>2018-2022</td>
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<td>Pineles</td>
<td>Neurobiological Predictors of Response to SSRIs</td>
<td>NIH NIMH</td>
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<td>Ross &amp; Woodward</td>
<td>Lucid Dreaming in Veterans with PTSD</td>
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<td>2018-2020</td>
<td>$538,000</td>
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<td>Shiner</td>
<td>Patient Safety Center of Inquiry: Prevention of Suicide (Renewal)</td>
<td>VA NCPS</td>
<td>2018-2021</td>
<td>$858,835</td>
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<td>Wachen</td>
<td>Massed Cognitive Processing Therapy for Combat-Related PTSD</td>
<td>DoD</td>
<td>2017-2020</td>
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</tr>
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</table>

CSP Cooperative Studies Program; 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; NIA National Institute on Aging; NIH National Institutes of Health; NIMH National Institute of Mental Health; VA Veterans Affairs
Appendix C:
Fiscal Year 2017 Publications


Appendix C: Fiscal Year 2017 Publications


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Appendix C: Fiscal Year 2017 Publications


Appendix D: Fiscal Year 2017 In Press and Advance Online Publications


Appendix D: Fiscal Year 2017 In Press and Advance Online Publications


Appendix D: Fiscal Year 2017 In Press and Advance Online Publications


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Appendix D: Fiscal Year 2017 In Press and Advance Online Publications


Appendix E: Fiscal Year 2017 Scientific Presentations

Academy Health Research Meeting New Orleans, LA June 2017
1. Dichter, M., Butler, A., Haywood, T., Bellamy, S., Medvedeva, E., Roberts, C., & Iverson, K. M. Demographic, clinical, and health services use characteristics of women screening positive for post-year intimate partner violence in the Veterans Health Administration.

American College of Neuropsychopharmacology Hollywood, FL December 2016
7. Abdallah, C. The impact of ketamine on global brain connectivity in treatment resistant depression. In J. Murrough (Chair), Biomarkers of TRD.

Anxiety and Depression Association of America San Francisco, CA April 2017
Appendix E: Fiscal Year 2017 Scientific Presentations

(Angiometry and Depression Association of America Continued)

21. Wilsey-Stirman, S., Carreno, P., Mallard, K. N., Beristanios, M., Masina, T., & Monson, C. Examining modifications to an evidence-based psychotherapy for PTSD-associations with symptom change. In L. Marques (Chair), Clinician modifications to evidence-based treatments: The “how, why, and what’s next?” of changes to treatment protocols.

Association for Behavioral and Cognitive Therapies New York, NY October 2016


27. Green, J. D., Kearns, J. C., Marx, B. P., Nock, M. K., Rosen, R. C., & Keane, T. M. Evaluating safety plan effectiveness: Do safety plans tailor to individual veteran characteristics decrease risk? In D. J. Lee (Chair), Preventing suicide among military and veteran populations.


32. Heilman, M., Stoop, T., & Wolf, E. J. Associations between posttraumatic stress disorder, psychiatric comorbidity, and malingering.

33. Kachadourian, L., Black, A. C., & Rosen, M. I. Factors associated with mental health treatment attendance among veterans applying for service-connected compensation.


35. Maskin, R., Vogt, D., Taverna, E., & Smith, B. N. Indirect effects of deployment social support on parenting outcomes through PTSD symptomatology.

36. Norman, S. B. Discussant for D. Hien (Chair), Advances in treatments for traumatic stress disorders and addictions using behavioral and pharmacologic approaches in civilian and veteran populations.

37. Norman, S. B. Discussant for A. Asnaani (Chair), Under the influence: The co-occurrence of substance use disorders with PTSD and potential mechanisms maintaining their comorbidity.


39. Sloan, D. M. Alliance across group treatment for PTSD: Modeling change with respect to individual and group characteristics. In J. J. Jun (Chair), Predictors of PTSD treatment outcome.

40. Sloan, D. M. Emotional acceptance and suppression: Effects on self-reported affect and physiological responding among veterans with depression.


42. Sloan, D. M. Predictors of suicidal ideation among individuals with PTSD: Differences across veteran and community samples.

Association for Psychological Science Boston, MA May 2017


44. Berlingeri, A., & Knight, J. A. Vast PTSD diagnostic heterogeneity reflected by unique clinical symptom patterns on the CAPS and PCL-C.

Appendix E: Fiscal Year 2017 Scientific Presentations

(Association for Psychological Science Continued)


Biological Psychiatry San Diego, CA May 2017


54. Driesen, N. R. Ketamine and guanfacine effects on activation and connectivity during working memory: A functional magnetic resonance imaging investigation.


International Society for Traumatic Stress Studies Dallas, TX November 2016


International Society for Traumatic Stress Studies Dallas, TX November 2016


70. Cosgrove, K. Imaging neuroinflammation in PTSD.
Appendix E: Fiscal Year 2017 Scientific Presentations

(International Society for Traumatic Stress Studies Continued)


74. Galovski, T. E., Amalathas, A., & Feingold, Z. Comparison of barriers to care in a prospective study of civilians and police officers exposed to violence in Ferguson, MO.

75. Galovski, T. E., Feingold, Z., & Amalathas, A. Evidence-based practices in traumatized individuals suffering from severe mental illness and diverted from jail.


77. Gradus, J. L. Using machine learning to predict suicidal ideation in OEF/OIF veterans.

78. Green, J. D., Marx, B. P., Marx, B. P., Rosen, R. C., & Keane, T. M. Mental health utilization in OIF/OEF veterans with PTSD: The role of diagnostic accuracy and service connection as determinants of care seeking.


81. Gutner, C. A., Pedersen, E., & Drummond, S. Sleep disturbance, PTSD and depression: Leveraging client preferences for treatment modality in the face of comorbidity. In K. Walter (Chair), From epidemiology to treatment delivery and dissemination: The influence of conditions comorbid with PTSD.

82. Hamblen, J. L., Hundt, N. E., Bernardy, N. C., & Norman, S. B. Preferences for decision making involvement and information about PTSD treatment: A nationally representative online survey of adults who screened positive for PTSD. In J. L. Hamblen (Chair), Enhancing the quality of online information to support treatment engagement.

83. Harik, J. M., Grubb, K., & Schnurr, P. P. Using graphics to communicate information about PTSD treatment effectiveness to patients. In J. L. Hamblen (Chair), Enhancing the quality of online information to support PTSD treatment engagement.


89. Kehle-Forbes, S., & Spoont, M. Gender differences in rates and predictors of individual psychotherapy initiation and engagement among veterans newly diagnosed with PTSD.


92. Kelley, E., Dardis, C., & Gidycz, C. A. The role of PTSD symptom clusters in sexual functioning in women with a history of sexual assault. In L. C. Wilson (Chair), Sexual assault/military assault.


95. Loflin, M. J. A review of the therapeutic potential of cannabinoids for PTSD.

96. Loflin, M. J. Medicinal versus recreational cannabis use: An investigation of characteristics and correlates among veterans with PTSD. In E. Dworkin (Chair), Clarifying connections between cannabis use and PTSD: Moving from the laboratory to the treatment clinic. Macia, K. S., Carlson, E. B., Waelde, L., & Palmieri, P. Heterogeneity in manifestations of dissociation across individuals from diverse clinical and non-clinical samples.


100. McCaslin, S. E., Maguen, S., Metzler, T., Bosch, J., Neylan, T. C., & Marmar, C. Perceived impact of PTSD symptoms on work, social, and quality of life outcomes in veterans: Exploring the potential benefits of a PTSD specific functioning measure. In B. N. Smith (Chair), Examining the impact of PTSD on work, family, and other related quality of life outcomes in veterans of the wars in Iraq and Afghanistan.

Appendix E: Fiscal Year 2017 Scientific Presentations

(International Society for Traumatic Stress Studies Continued)


103. Montano, M. A., Sherrieb, K., & Bernardy, N. C. Sleep on this: Changing prescribing, access and attitudes through rural provider education.

104. Mosher, S. J., Erb, S. E., Parker-Guilbert, K., Traichtenberg, F., Rosen, R. C., Keane, T. M., & Marx, B. P. Less symptomatic but more impaired: Correlates of early treatment termination among returning veterans with PTSD.


110. Ortigo, K. M., Owen, J. E., & Carlson, E. B. Veteran preferences for alternative methods for mental health care delivery. In K. Possemato (Chair), Innovative online services to increase treatment access and engagement for veterans.


115. Ratanatharathorn, A., Logue, M. W., Miller, M. W., & PGC-PTSD. Epigenetics workgroup DNA methylation at NRG1 may be an epigenetic biomarker of PTSD in civilian cohorts. In A. B. Amstadter & N. R. Nugent (Chairs), Updates from the psychiatric genomics consortium for PTSD: GWAS, EWAS, expression, and imaging.


117. Schnurr, P. P. (2016, November). Discussion. In T. Jensen (Chair), Moving from research to practice to meet the needs of trauma-exposed populations across the globe.


121. Smith, Noelle, Tsai, J., Pietrzak, R. H., Cook, J., Hoff, R., & Harpaz-Rotem, I. Predictors of psychotherapy after initial diagnosis among Iraq and Afghanistan veterans.


123. Spoon, M., Bass, D., Osei-Bonsu, P., O’Dougherty, M., Vang, D., Hagedorn, H., Friedman, M. J., Felker, B., & Post, E. Engaging primary care providers in VA community clinics to provide evidence based pharmacotherapy for PTSD. In N. Bernardy (Chair), Innovative approaches to improving PTSD treatment: Using technology to aid public health.


Appendix E: Fiscal Year 2017 Scientific Presentations

(U.S. Department of Veterans Affairs)

Science of Dissemination and Implementation in Health Washington, DC December 2016


U.S. Department of Veterans Affairs


134. Averill, L. (2016, December). Ketamine trials at the NCPTSD: A brief review of where we’ve been, where we are, and where we are going. Presented at the New York Harbor VA Medical Center, Brooklyn, NY.


139. Galovski, T. E. (2017, June). Identifying and mitigating the potential toll of military service on women's health, functioning, and well-being. VA Women's Health Services and Research Meeting, Boston, MA.


Appendix E: Fiscal Year 2017 Scientific Presentations

(U.S. Department of Veterans Affairs Continued)


150. Wiltsevbank, S. (2017, July). Considering fidelity in implementation. In P. P. Schnurr (Chair), Perspectives on implementation of evidence-based psychotherapy for PTSD. Presentation at the 2017 National Meeting of VA Health Services Research and Development Service (HSR&D), Crystal City, VA.

Other


152. Abdallah, C. (2017, April). Neuropsychology: Transient stressors but lifelong psychopathology. Presented for Grand Rounds, University of Missouri Kansas City (UMKC) School of Medicine, Kansas City, MO.


156. Babson, K. A., & Vandre, R. (2016, November). The association between long-term and current cannabis use and slow wave sleep. In P. Morgan (Chair), Human laboratory and clinical advances in sleep and substance use. Paper accepted for presentation at the 50th Annual Meeting of the Winter Conference on Brain Research, Big Sky, MT.


160. Dardis, C. Austin, M. J., Bill, A. C., & Gidycz, C. A. (2017, March). "Mis"perception is reality: The influence of college men’s perceptions of peer sexual behavior on prosocial bystander intervention. In C. Dardis (Chair), Intersections of gender and violence: Associations between gendered expectations and attitudes, IPV perpetration, and prosocial bystander intervention. Symposium conducted at the Annual Meeting of the Association for Women in Psychology, Milwaukee, WI.


164. Duman, R. (2016, December). Blockade of tonic firing interneurons in the PFC is required for the rapid antidepressant actions of ketamine and scopolamine. Presentation at the American College of Neuropsychopharmacology, Hollywood, FL.


Appendix E: Fiscal Year 2017 Scientific Presentations

(Other Continued)


Appendix E: Fiscal Year 2017 Scientific Presentations

(Other Continued)


203. Nillni, Y. I. (2016, October). The intersection of women's mental and reproductive health: Identifying mechanisms for intervention. Colloquium presented to the Division of Prevention and Community Research, Department of Psychiatry, Yale University, New Haven, CT.


223. Taverna, E., Nilni, Y. I., TVMI Study Team, & Vogt, D. (2016, November). Development and validation of the Well-Being Inventory (WBI): A comprehensive tool for the assessment of veterans’ status, functioning, and satisfaction with respect to vocation, finances, health, and social relationships. Poster presented at the Annual Boston University Medical Center and Veteran Affairs Boston Joining Forces TBI/PTSD Conference, Boston, MA.


Appendix F: Fiscal Year 2017 Educational Presentations

International Society of Traumatic Stress Studies, Dallas, TX, November 2016

2. Merrick, C., & Bippart, V. Customizing an online PTSD treatment decision aid to improve patient-centered care.
4. Watson, P. Increasing community capacity to respond to disasters. In D. Zatzick (Chair), Designing and implementing broad-reach early trauma-focused interventions for public health dissemination.

Other

17. Gelernter, J. (2017, February). Genetics of substance use disorders: GWAS and beyond. Presentation for the Yale-Chula Drug Dependence throughout the lifespan Training Program Course in Epidemiology, Genetics and Brain Imaging in Addiction, Chulalongkorn Faculty of Medicine, Bangkok, Thailand.
Appendix F: Fiscal Year 2017 Educational Presentations

(Other Continued)


29. Keane, T. M. (2017, January). Recent advances in the psychological treatment of PTSD. Presentation at the University of Miami Department of Psychiatry Grand Rounds, Miami FL.


42. Pineles, S. L. (2016, November). Gender and PTSD. Guest Lecture for Psychopathology Graduate Seminar at Suffolk University, Boston, MA.


47. Sanacora, G. (2017, January). Update on ketamine and other putative rapid acting antidepressants. Invited address at the University of Miami, Psychiatry Grand Rounds, Miami, FL.


56. Southwick, S. M. (2016, October). The science of resilience: Lessons from the resilient. Keynote address for Mind Body Medicine: Its Role in Compassionate Care, Harvard University School of Medicine, Boston, MA.

Appendix F: Fiscal Year 2017 Educational Presentations

(Other Continued)


60. **Taft, C. T.** (2017, February). *Preventing domestic violence in military veterans.* Presented at Boston University School of Medicine, Boston, MA.


71. **Wiltsey Stirman, S., Carreno, P., Mallard, K. N., Tasoula Masina, & Monson, C.** (2016, October).Which aspects of a learning collaborative are associated with fidelity to and adaptation of an evidence-based psychotherapy? In R. Hanson (Chair), *Peering Into the black box: Are we getting closer to unpacking the learning collaborative implementation model?* Association for Behavioral and Cognitive Therapies, New York City, NY.


73. **Wolf, E. J.** (2017, February). *The dissociative subtype of PTSD: From genes to diagnostic assessment and treatment.* Presented for the Perspectives on Trauma Series, McLean Hospital, Belmont, MA.

Appendix G:
Fiscal Year 2017 Editorial Board Activities

**Administration and Policy in Mental Health Services and Mental Health Services Research**
Wiltsey Stirman

**American Journal of Medical Genetics, Part B**
Gelernter

**Asian Biomedicine (Research Reviews and News)**
Gelernter

**Behavior Therapy**
Gutner; Sloan (Editor); Wolf

**Behaviour Research and Therapy**
Ruzek; Sloan

**Biological Psychiatry**
Duman; Gelernter; Krystal (Editor); Sanacora

**Biological Psychiatry: Cognitive Neuroscience and Imaging**
Duman, Gelernter, Sanacora

**Brain Stimulation**
Duman

**Chinese Journal of Psychology**
Keane

**Chronic Stress**
Abdallah (Editor); Duman; Esterlis; Krystal (Associate Editor); Pietrzak; Rasmusson; Sanacora; Southwick; Woodward

**Clinical Psychology Review**
Pineles (Guest Editor)

**Clinical Psychology: Science and Practice**
Keane

**Cognitive and Behavioral Practice**
McLean; Shipherd (Guest Editor)

**Community Mental Health Journal**
Harpaz-Rotem

**Current Psychiatry Reports**
Friedman

**Depression and Anxiety**
Holtzheime

**Eating Behaviors**
Mitchell (Associate Editor)

**European Journal of Psychotraumatology**
Cloitre (Associate Editor)

**Frontiers in Neuroscience: Neurogenomics**
Miller (Associate Editor); Wolf

**Frontiers in Neuroscience: Neurogenesis**
Duman (Associate Editor)

**International Journal of Emergency Mental Health**
Keane

**Journal of Abnormal Psychology**
Miller; Wolf

**Journal of Anxiety Disorders**
Pietrzak; Ruzek

**Journal of Child and Family Studies**
Tiet

**Journal of Clinical Psychology**
Sloan

**Journal of Consulting and Clinical Psychology**
Marx; Sloan; Taft

**Journal of Contemporary Psychotherapy**
Sloan

**Journal of Depression and Anxiety**
Tiet

**Journal of Family Psychology**
Taft

**Journal of Family Violence**
Taft

**Journal of Neurochemistry**
Duman

**Journal of Neuroscience**
Levy (Associate Editor)
Appendix G: Fiscal Year 2017 Editorial Activities

**Journal of Rehabilitation, Research and Development**
Harpaz-Rotem (Associate Editor), Keane

**Journal of Trauma and Dissociation**
Carlson; Marx

**Journal of Traumatic Stress**
Galovski (Associate Editor); Miller; Morand; Wolf

**mHealth**
Ruzek

**Molecular Neuropsychiatry**
Abdallah

**Molecular Pharmacology**
Duman

**Neuropsychopharmacology**
Duman; Gelernter (Associate Editor); Sanacora (Deputy Editor)

**Neuroscience Letters**
Abdallah (Guest Editor)

**Partner Abuse**
Taft

**PLoS One**
Miller

**Psychiatric Genetics**
Gelernter

**Psychological Assessment**
Vasterling

**Psychology Injury and Law**
Pietrzak

**Psychological Trauma: Theory, Research, Practice and Policy**
Carlson; Keane; Marx; Miller; Ruzek; Smith; Vogt; Wachen

**Psychopharmacology**
Abdallah; Duman

**Psychosomatic Medicine**
Sloan

**Trauma, Violence, and Abuse**
Keane
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White River Junction, VT 05009

BEHAVIORAL SCIENCE DIVISION
VA Boston Healthcare System (116B-2)
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