NATIONAL CENTER FOR PTSD
Fiscal Year 2016 Annual Report

WOMEN’S MENTAL HEALTH
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NEPEC
Northeast Program Evaluation Center

NHRVS
National Health and Resilience in Veterans Study

NIH
National Institutes of Health

NIMH
National Institute of Mental Health

NMDA
N-Methyl-D-Aspartate

OMHO
Office of Mental Health Operations

OXTR
Oxytocin Receptor Gene

PBIN
Practice-Based Implementation Network

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

PCL-5
PTSD Checklist for DSM-5

PDSI
Psychotropic Drug Safety Initiative

PE
Prolonged Exposure

PET
Positron Emission Tomography

PILOTS
Published International Literature on Traumatic Stress

PTG
Posttraumatic Growth

PTSD
Posttraumatic Stress Disorder

RDoC
Research Domain Criteria

RVHT
Responsive Virtual Human Technology

SERV
Survey of Returning Veterans

SGK1
Serum and Glucocorticoid-Regulated Kinase 1

SNP
Single Nucleotide Polymorphism

SPECT
Single-Photon Emission Computed Tomography

STAIR
Skills Training in Affective and Interpersonal Regulation

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

SV2A
Synaptic Vesicle Glycoprotein 2A

TBI
Traumatic Brain Injury

t-LLL T
Transcranial Low-level Light Therapy

TRACTS
Translational Research Center for TBI and Stress Disorders

TRAIN
TrainingFinder Real-Time Affiliate Integrated Network

USUHS
Uniformed Services University of the Health Sciences

VA
Department of Veterans Affairs

VALOR
Veterans After-Discharge Longitudinal Registry

VHA
Veterans Health Administration

WBI
Well-Being Inventory

WTC
World Trade Center
As more and more women are entering the military — and taking on responsibilities that for most of history were reserved for men — the need for a better understanding of how posttraumatic stress disorder (PTSD) affects women is becoming increasingly critical. Since its beginning, the National Center for PTSD has been at the forefront of research focused on women, both during and after their military service, and the opening section of this Annual Report summarizes some of the important work that is being done in this area today.

Our work with women Veterans owes a tremendous debt of gratitude to Dr. Jessica Wolfe, whose vision and determination were central to the founding of the Women’s Health Sciences Division, and who led the Division with great distinction in its early years. Under her leadership we were able to grow the portfolio of research and educate clinicians so that they are better able to meet the needs of women Veterans.

Jessica was succeeded by Dr. Patricia Resick, who led the Division for ten years and continued the pattern of excellence in research and education. The Division is now in the capable hands of Dr. Tara Galovski, who joined us in 2015. These dedicated professionals, and all the researchers who have been involved with the Division’s work over the years, have contributed immeasurably to our understanding of women and PTSD, and to our ability to formulate approaches to addressing their needs.

There have been many other noteworthy accomplishments during FY 2016. Progress on the PTSD Brain Bank, under the direction of former National Center Executive Director Dr. Matthew Friedman, has continued to advance. The Bank now contains 149 PTSD and comparison brains, giving us an extraordinary opportunity to study how PTSD affects the structure and function of the brain.

The National Center has also built a network of relationships that enable us to draw on resources from around the country, collaborate with colleagues in many different specialties, and disseminate our findings to the broadest possible audience. In addition to our collaborations across our own seven centers of excellence across the United States, and our close relationships with clinicians throughout the VA, we often work on joint projects with researchers from other government agencies, medical centers, and universities. The Consortium to Alleviate PTSD, or CAP, is an example of an especially fruitful collaboration. It is a five-year project led by the National Center and the STRONG STAR Consortium at the University of Texas, that includes an array of cutting-edge clinical trials and biological studies. You will find more information on this and many other collaborative projects throughout this Annual Report.

We are proud of our staff and the work we do, and are especially gratified that our work helps to improve the lives of the brave women and men in our military.

Dr. Paula P. Schnurr
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 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.
At the time of the founding of the National Center for PTSD, experiences unique to women in the military were coming into focus for the first time. A key driver of the new interest in women Veterans was the National Vietnam Veterans Readjustment Survey, completed and published in the late 1980s. It was the first rigorous study of the psychological consequences of war by any country, and was the first to include results related specifically to women. Shortly thereafter the 1990-1991 Gulf War ushered in an era of high-tech warfare during which women played an increasingly vital role, serving closer to the front lines than ever before.

The National Center for PTSD was founded in 1989, and immediately took an interest in women’s issues. In 1990, the Center’s first full year of operation, researchers in the Behavioral Science Division in Boston began developing a Women’s Wartime Exposure Scale, an initial step toward creating diagnostic instruments that would be valid for women. In 1993 the Women’s Health Sciences Division of the National Center was established, led by Dr. Jessica Wolfe.

Today women make up more than 15% of active duty Servicemembers. Dr. Tara Galovski, the current Director of the Women’s Health Sciences Division, says, “Women have been exposed to combat for a long time, but their service roles were limited compared to men. The rules have recently changed to expand the breadth and depth of service for women in the armed forces — for instance, in infantry and Special Forces — which creates more opportunities for the women, but also more potential for exposure to traumatic stress.”

Women will continue to account for an increasing percentage of Veterans using the health care services of the Department of Veterans Affairs (VA) in the future: The number of women enrolled in VA healthcare increased...
The early 1990s were a historic time for women in the military with over 40,000 women deploying as women who volunteered to serve. By 1992, the number of women serving on active duty had increased to 171,000 (8 percent of the active duty force) and by 2012 reached 202,876 (about 14.6 percent of the entire active duty force). During the mid-1970s when the military began recruiting women for the AVF, women’s roles in society were also changing with more women entering into the paid labor market. Within a span of 35 years, from 1970 to 2005, the proportion of women in the civilian labor force increased from 37 to 54 percent. Women’s roles and opportunities were rapidly expanding in both the military and the civilian labor force. The military’s social, cultural, and political climate towards women was called into question in the aftermath of the Tailhook scandal, but the tension for women Servicemembers, specifically female aviators, remained high as opportunities for women in the military continued to expand.

In 1973, with the end of conscription and the advent of the All-Volunteer Force (AVF), the military began recruiting more women because there were not enough qualified male volunteers to meet the manpower needs of a volunteer military. At that time, about 45,000 women were serving on active duty in the four Department of Defense branches of service. In 1975, legislation was enacted that allowed women to be admitted to the three service academies. By 1980, the number of women serving on active duty had increased to 171,000 (8 percent of the active duty force) and by 2012 reached 202,876 (about 14.6 percent of the entire active duty force). The Tailhook convention in 1991, just vented women from flying combat aircrafts. These large policy changes in women’s participation in public service. In addition, in 1992 the Defense Authorization Act repealed combat exclusion laws that p

Treatment for PTSD

In 2007 the National Center published findings from a groundbreaking VA Cooperative Study that included almost 300 female Veterans and active duty personnel of all eras, ranging in age from 22 to 78. According to Dr. Paula Schnurr, the Center’s Executive Director and the lead researcher on the project, “This study was the first treatment study focusing specifically on women Vets, and in fact it was the first VA Cooperative Study to focus on women for any condition.” She is currently leading another VA Cooperative Study to compare the efficacy of the two most effective evidence-based treatments, Cognitive Processing Therapy (CPT) and Prolonged Exposure (PE), and to examine whether male and female Veterans differ in response to these treatments.

Today some of the National Center’s researchers have turned their attention to developing a better understanding of engagement with treatment — that is, once a person has sought out treatment, how can clinics encourage them to stay with the treatment long enough to experience the positive effects? Dr. Rachel Kimerling of the National Center’s Dissemination and Training Division explains, “We know that women are more likely than men to seek out mental health treatments, and psychotherapy instead of medications. One of the topics we have focused on is whether there is a need for separate clinics or services just for women,” says Dr. Kimerling. “It’s hard to get women to engage in care if they feel uncomfortable in a waiting room filled mostly with men, or if they feel out of place, or worse, unsafe.”

Dr. Kimerling and her colleagues conducted a multisite study of women who came to the VA for primary care. They found that women who were experiencing PTSD and other mental health issues were much more likely to want care tailored specifically to the needs of women, such as women-only waiting rooms and women providers. In contrast, gender-specific options were not considered important in dealing with physical health problems such as pain.

“We are now developing a brief measure that can be used in the primary care setting,” says Dr. Kimerling. “It’s a way to let us know how to help Veterans engage with the kind of care they want and need.” She thinks the benefits will extend beyond treatment of PTSD to issues like suicide or homelessness. “We want women to feel less trapped, less alone, to know that there is a lot of help out there, and to know how to get that help.”
The Neurobiology of PTSD in Women

The National Center is a leader in research on the neurobiology of PTSD, studying how the structure and processes of the brain are affected by exposure to trauma and by the disorder itself. Researchers have followed many avenues of investigation in an attempt to discover whether there are sex differences in the underlying neurobiology of PTSD. One focus of this research has been on the relationship between PTSD and women’s reproductive health. Women with PTSD are twice as likely to have preterm births and eight times more likely to suffer from premenstrual dysphoric disorder. Investigators have also found that PTSD symptoms differ across the menstrual cycle and throughout pregnancy.

An example of a promising emerging target of research is the steroid allopregnanolone, produced naturally in the brain and adrenal glands, and its counterpart pregnanolone, collectively called ALLO. ALLO works on receptors in the brain to dampen stress reactions. Levels of ALLO in the central nervous system were found by researchers at the National Center to be dramatically lower in women with PTSD and to correlate with the severity of PTSD symptoms. The levels of ALLO in women with PTSD were 60% below levels in healthy women; in women with both PTSD and depression, levels were 80% below normal.

Researchers believe that low ALLO levels might also interfere with the retention of learning that occurs in PTSD treatment sessions; that is, a patient with PTSD may learn that it is safe to stop reacting to a particular reminder of a trauma, but the person may be unable to retain that learning over time.

Dr. Ann Rasmusson, a leader in research on ALLO, believes “(d)eficiencies in ALLO production are related to both genetic factors and environmental influences, such as extreme stress. It would be very helpful to develop measurement and screening tools to identify people who are susceptible and to develop targeted treatments for them.”

Military Sexual Trauma and Intimate Partner Violence

The National Center was one of the first organizations to study the effects of military sexual trauma (MST) on women (and men) and the connection between MST and the development of PTSD. VA defines MST as any unwanted sexual experience that occurred during deployment, ranging from verbal sexual harassment to sexual assault. VA screening data indicate that at least one in four women who served in the military have experienced MST.

Attending to these experiences among women Veterans is particularly important because, among all the possible traumatic events that can happen, rape carries the highest risk of leading to PTSD, higher than even combat experiences. Sexual trauma during a combat deployment
may be particularly difficult to cope with, since it is often impossible for a woman to avoid her aggressor in a military setting, especially if the aggressor is in a position of authority.

According to Dr. Amy Street, an expert in MST research, “(t)he military is a male-dominated culture, and male-dominated cultures have a greater prevalence of sexual harassment. General harassment, like yelling from a drill instructor, goes on all the time, so that aggressive behavior can begin to seem normal. And of course the military is more hierarchical, and higher-ranking people can tell you what to do and you have to obey. This can create an environment that is ripe for bad behavior.”

Dr. Street notes that MST can result in significant losses for the military. “Women can be attracted to the military’s structure and rules, especially women who come from more chaotic family environments. They feel very betrayed by the military when they experience MST, especially if the situation isn’t addressed and the perpetrator isn’t punished. When they have to make a choice between their safety and their career, they will often decide to leave the military.”

Military women are also more likely than non-military women to experience violence at the hands of intimate partners during and after their military experience. VA has begun to use an intimate partner violence (IPV) screening questionnaire to identify women and men who have experienced IPV within the previous year. As efforts to increase the implementation of IPV screening programs take place across the VA system, VA is likely to have the largest healthcare-based IPV screening program in the world.

According to Dr. Katherine Iverson, one of the leading experts on IPV, “(a)t least one in four women Veterans who are in relationships have experienced past-year physical, emotional, or psychological violence at the hands of their partner, which is as much as twice the rate you would expect in the general population.” The reasons for this are unclear, but it appears that women who have experienced sexual abuse as children or dysfunctional family situations are more likely to report IPV, and it is possible that women in these situations are more likely to join the military as a means of escape. It is also the case that the experience of...
MST is another risk factor for recent IPV among women Veterans.

Drs. Street and Iverson are also working to improve how the VA system responds to women who reveal that they have experienced MST or IPV. For example, Dr. Iverson says “(w)e know that different resources are available in different settings, but at the very least the person who discloses IPV should get validation of their situation, information about effects, and referrals to a social worker, mental health professional, or community partner, depending on what's available at that specific VA facility.” A new program called RISE (Recovering from IPV through Strength and Empowerment) takes a modular approach, recommending counseling that focuses on each individual’s unique situation: Does she need safety planning? The location of local homeless shelters? Social support?

Division researchers are also studying ways to address barriers to disclosure of MST and IPV in the clinical setting. Patients can experience shame if they feel victimized or responsible in some way for their assault. Providers can similarly be uncomfortable talking about sensitive issues, or fear they will say something inappropriate. Resolving these issues requires consultation and training throughout the network of VA providers.

Well-Being After Military Service

National Center researchers are looking at Veterans’ well-being in general, and identifying specific areas in which VA and Veteran service organizations can help Veterans during the transition to their post-military lives.

One study on this topic focused on a sample of post-9/11 Veterans, identifying experiences they had when deployed in Iraq and Afghanistan, looking at their post-deployment mental health, and measuring the impact of these experiences on well-being. According to Drs. Dawne Vogt and Brian Smith, PTSD appears to have a similar impact on women’s and men’s work and family-related well-being overall, although some noteworthy gender differences were observed as well. For example, while PTSD had implications for reduced work functioning for both women and men, PTSD was associated with lower job satisfaction for women only.

Building on that work, Dr. Vogt has devised a measurement tool called the Well-Being Inventory (WBI) that assesses not only mental and physical health, but also functioning related to vocations, finances, and social relationships. A major ongoing project is using the WBI to look at military-to-civilian transitions among 9,600 individuals from the general Veteran population. Researchers are using this tool to survey these Veterans three months after they separate from military service, and will continue to follow up every six months for the next three years.

Dr. Vogt reports that initial findings have been encouraging. “Most of the Veterans we surveyed are actually doing quite well, particularly in the areas of employment, finances, and social relationships,” she reports. “The one area where they are struggling is in the physical and mental health domain. Over half have some sort of ongoing physical condition, usually chronic pain or sleep problems. And about a third are reporting some mental health issues such as PTSD, general anxiety, or depression.” Men and women are similar on most
measures of well-being. The one exception is in the area of employment: Women who have recently separated from military service are somewhat more likely to report trouble finding a job than men.

Researchers are also working to identify which particular elements of the transition and reintegration programs are being most heavily used, how they are being used, and what core components are common to programs that are working especially well. Ultimately they hope to incorporate the most successful components into future programs.

According to Dr. Vogt, “I’m very excited to be following the same cohort over time. We can learn so much by looking at how Veterans’ needs vary across the transition process. Do they need financial literacy courses? Job-hunting skills? Mental health treatment? And when are these programs most useful? If we can find the point in that process when people benefit most from these programs, we can ensure that the support Veterans need is available when they need it most and help them have a successful reintegration."

“Dr. Dawne Vogt

Looking Ahead

Many of the National Center’s current research efforts are expected to have significant positive effects for women Veterans in the future. Research on neurobiological factors could lead to more effective treatments or preventive regimens. Data on women’s needs and preferences for treatment will hopefully result in improvements in clinical settings that will encourage women to engage more effectively with their treatments.

Dr. Galovski is currently launching a major survey called LIGHT (Longitudinal Investigation into Gender Health and Trauma) that will gather information on the personal histories and experiences of a large cohort of women and men, mostly recruited from communities exposed to high levels of violence — a population of Veterans that has gone understudied. The project is aimed at better understanding the implications of trauma and exploring gender differences in mental health issues, effects on reproductive health, and the prevalence of risky behaviors. “Everything we have learned so far is informing this survey,” says Dr. Galovski, making it one of the most comprehensive studies of its type ever undertaken.

Dr. Iverson would like to see the results of research on IPV extended to an even broader population. “It would be great to have preventive care, with earlier interventions for women at risk for sexual violence.” She adds, “(m)any segments of our society believe that violence against women is acceptable. Women need to know that it’s not OK, and to hold people accountable for their behavior.”

National Center Executive Director Dr. Schnurr sees great progress across many fronts. “I’m so proud of our entire portfolio of research on women and PTSD — screening, treatment, biology, and more. We’ve been able to learn a great deal about the particular issues faced by women Veterans. We also have learned that women may have unique needs, different from men, but that doesn’t mean they are fragile or less resilient. The more we can further our understanding in this area, the better able we will be to meet their needs in the future.”
Major Research Initiatives in Fiscal Year 2016

The National Center for PTSD is a leader in innovative research on the prevention, causes, assessment, and treatment of PTSD. Three years ago the National Center adopted five Operational Priorities, broad research topics that organize and focus research activities on those areas that are likely to have the greatest benefit to Veterans.

- **Biomarkers.** The establishment of biomarkers to predict who develops PTSD, to diagnose PTSD, and to predict and measure response to treatment.

- **Treatment.** Development of strategies to enhance the effectiveness of existing treatments, to enhance treatment engagement, and to develop more effective treatments.

- **Care Delivery.** Development of strategies to enhance access to treatment, measurement-based care, shared decision-making, and treatment for PTSD in primary care.

- **Implementation.** Development of research, strategies, and infrastructure to promote implementation of best practices.

- **DSM-5.** Implementation of research and education activities related to the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5).

Starting in FY 2017, the National Center will adopt a new Operational Priority: PTSD and Suicide, to investigate the relationship between PTSD and suicide and develop strategies to predict and prevent suicide among individuals with PTSD.

During FY 2016, researchers in the National Center led 100 funded studies, ranging from small studies at a single location to large multisite projects, often involving partner organizations in the government, universities, and agencies outside of the United States. Investigators published 234 print publications, including peer-reviewed journal articles, book chapters, and books, and had another 127 in-press and advance online publications.

The sections that follow highlight a few of the FY 2016 research initiatives that were undertaken to address the five Operational Priorities. A description of research projects that took place at each of the seven Divisions is provided in Appendix A.

**Biomarkers**

Advancing the understanding of the neurobiology of PTSD is critical to improving diagnosis, prevention, and treatment. The National Center established the first
national PTSD Brain Bank in 2014 to support research addressing these topics. Led by Dr. Matthew Friedman, founding Executive Director and Senior Advisor to the National Center, the Brain Bank currently has an inventory of 149 PTSD and comparison brains. This number continues to increase as both Veterans and non-Veterans volunteer to be donors.

The first manuscript presenting Brain Bank data was published in FY 2016. The research revealed that a specific signaling protein involved in neuronal plasticity, called serum and glucocorticoid-regulated kinase 1 (SGK1), may be a molecular signature of PTSD. Additional research efforts utilizing Brain Bank data are underway, including DNA methylation analyses of several brain regions, development of a diagnostic biomarker panel using postmortem tissue and blood samples, and examination of the validity of postmortem diagnostic assessments of PTSD.

Support for cutting-edge clinical trials and biological studies is provided by the Consortium to Alleviate PTSD (CAP), a five-year, $45 million award to the National Center and the STRONG STAR Consortium at the University of Texas Health Science Center in San Antonio co-directed by Dr. Terry Keane. Currently in its third year, the CAP will be critical for learning more about the biology and physiology of PTSD, using response to treatment to inform subsequent diagnosis, enhancing prediction of symptoms over time, and developing new or improved treatment methods. Eleven CAP studies are currently underway. One particularly notable study is an examination of ketamine, a medication typically used for sedation that also has rapid antidepressant effects; researchers believe it could be an effective treatment for PTSD in active duty military personnel and Veterans who do not respond to conventional antidepressant treatment.

The Behavioral Science and Clinical Neurosciences Divisions continue to use novel neuroimaging techniques to analyze brain structure and function, hoping to identify specific signatures of PTSD that could be targeted by new treatments. Investigators at the Women’s Health Sciences Division are examining stress-related biological factors that can be measured in blood and predict psychiatric, substance use, and medical conditions in Veterans with PTSD.

Finally, the National Center is forging valuable partnerships with other organizations — including the Psychiatric Genomes Consortium, a worldwide confederation of investigators — to increase access to the large sample populations that are required for genetics research. Findings from these partnered research studies include identification of a gene associated with reduced volume of certain brain regions in PTSD and evidence that PTSD is associated with accelerated aging at the cellular level.

Medial (top) and lateral (bottom) views of the whole cortex vertex-wise analysis of the rs977003 × PTSD diagnosis interaction. The cluster-wise significance for all clusters depicted was $p < 0.0051$. The temporal and frontal clusters (red/yellow) correspond to components of the default mode network modeled in the primary analysis. The blue cluster in the visual cortex, (which was opposite in direction relative to the temporal and frontal effects) was not detected in the primary analysis because it is not a component of the default mode network.

Miller et al. (2016), Frontiers in Neuroscience, 10, 299.
Treatment Efficiency, Effectiveness, and Engagement

Cognitive Processing Therapy (CPT) and Prolonged Exposure (PE) are two important evidence-based treatments for PTSD that have proven to be highly effective. They are not effective for all patients, however, and they require significant time and effort from both providers and patients.

To address these and many other issues related to treatment, researchers at multiple Divisions of the National Center have begun a groundbreaking Cooperative Studies Program investigation (CSP #591) to delve more deeply into CPT and PE. The study will enroll 900 male and female Veterans at 17 sites across the country; over 600 Veterans had been enrolled at the end of FY 2016. 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.

Other studies are examining more efficient ways to deliver treatment. For instance, one study is examining treatment formats for psychotherapies to determine if the treatments can be effective with less than the 12 sessions that trauma-focused therapy usually requires. In another effort, investigators at the Women's Health Sciences Division completed studies on the relative effectiveness of CPT delivered in a group versus individual format. The primary results revealed that PTSD symptoms improved in both groups, but participants who received individual therapy improved about twice as much as participants who received group therapy.

Enhancing access to evidence-based PTSD treatment is an important focus of National Center investigators. Dissemination and Training Division investigators are leading a large multisite clinical trial with women who are using public mental health clinics; the study is testing the effectiveness of a flexibly delivered PTSD skills training program combined with PE treatment.

Patients vary in their motivation and ability to engage effectively with mental health care, but to date there have been no brief measures of PTSD treatment engagement that can be used in clinical practice. To fill this gap, the Dissemination and Training Division is developing a measure to guide identification of service resources needed to engage Veterans with their care and promote successful treatment outcomes. Another study is exploring Veteran and provider perspectives regarding reasons for dropout from CPT and PE; the aim is to create an intervention that will increase rates of completion.

Care Delivery, Models of Care, and System Factors

In addition to studying the effectiveness of the treatments themselves, the National Center is also working to develop strategies to facilitate shared decision-making between Veterans and their providers.

Executive Division investigators surveyed a national sample of adults with PTSD symptoms, half Veterans and half non-Veterans, to assess their decision-making needs and preferences for PTSD treatment. The published results are informing the development of the first publicly available online decision aid for PTSD, which will be available on the National Center’s website in FY 2017.
The National Center is leading the way in developing technology-based interventions that increase access to care and reduce the burden on clinics and patients. Following two successful pilot studies of PTSD Coach, a mobile app that provides information and self-help skills, the Dissemination and Training Division will assess the efficacy of PTSD Coach compared to treatment as usual in reducing PTSD symptoms in Veterans in primary care. Several pilot studies of additional mobile phone apps are underway, including examinations of PTSD Family Coach, intended to reduce stress among family members of people with PTSD; Parenting2Go; Mindfulness; and Cognitive Behavioral Therapy for Insomnia (CBTi).

Finally, investigators continue to develop and test the utility of VetChange, an online program designed for combat Veterans who served in Iraq and Afghanistan and who report risky use of alcohol and PTSD-related distress. The initial randomized controlled trial produced evidence that VetChange is effective in reducing both drinking and PTSD symptoms. An enhanced mobile-friendly public website version is now under evaluation, and a pilot evaluation of a mobile app with key VetChange features will begin soon.

**Implementation**

The VA Uniform Mental Health Services Handbook recommends that all Veterans have access to CPT and PE, and these treatments are being implemented across VA. The National Center is actively assessing the rate at which the treatments are gaining acceptance and usage, as well as identifying both facilitators of and barriers to implementation.

A project focused on implementation of these treatments in VA residential programs for PTSD revealed that providers reported challenges in predicting patient readiness, which affected access to services; they also found barriers to implementation that included lack of dedicated time and resources. Support of clinic leadership was positively associated with high levels of implementation of both CPT and PE.

A team of investigators, including National Center personnel from multiple Divisions, has worked to identify organizational and clinic factors that promote high reach of CPT and PE. Five major themes differentiated high- and low-reach clinics: mission, team engagement, clinic operations, staff perceptions, and practice environment. These differences suggest that training clinicians is necessary but not sufficient; organizational barriers have to be addressed as well.

One ongoing project at the Dissemination and Training Division is evaluating competing strategies intended to enhance and sustain the delivery of PTSD treatment. One strategy emphasizes fidelity to the protocol through expert consultation, and another focuses on improving
fit of the intervention to the environment through continuous quality improvement. A second ongoing study is focused on increasing awareness of, receptivity to, and implementation of clinical practice guidelines for management of PTSD. A third study, near completion, is investigating the use of web technology to train clinicians in evidence-based interventions and to test whether variations in training procedures affect quality of skills in implementing the interventions.

Development of innovative strategies to improve patient access to care, including reduced patient wait times, is underway. In particular, investigators are testing the use of participatory systems dynamics, a collaborative stakeholder model in which data are used to identify specific system problems, propose changes, and measure the impact of those changes on outcomes.

Over the longer term, the National Center is working to develop a practitioner-based implementation network across both the VA and the Department of Defense (DoD) that will assess the benefits of the implementation of measurement-based care, specifically the use of symptom measures during the course of treatment to guide treatment planning.

### Diagnostic and Statistical Manual of Mental Disorders (DSM-5)

The National Center continued its leadership in development of diagnostic tools by spearheading efforts to update assessment instruments for the fifth edition of the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders (DSM-5). DSM-5 is a classification and diagnostic tool that outlines the diagnostic criteria for all currently recognized psychological disorders. Diagnoses made with DSM-5 guide treatment recommendations, insurance billing, and other related factors.

The Clinician-Administered PTSD Scale (CAPS), developed at the National Center more than 20 years ago, has long been the gold standard diagnostic instrument. Investigators are currently testing the diagnostic accuracy of the CAPS-5, which was updated for DSM-5.

In other efforts, National Center investigators published evidence demonstrating the sound psychometric properties of the PTSD Checklist for DSM-5 (PCL-5), a 20-item self-report measure of past-month PTSD symptoms; results also indicated the optimal cutoff for diagnosing PTSD with this scale. Another study is underway to examine the properties of the Primary Care-PTSD Screen for DSM-5 (PC-PTSD-5). Finally, the Dissociative Subtype of PTSD Scale and the Dissociative Symptoms Scale have been published and are now available for download on the National Center’s website.

The figure shows the estimated mean CAPS severity scores at pretreatment and follow-up assessments as a function of class assignment. PTSD = posttraumatic stress disorder; CAPS = Clinician Administered PTSD Scale.

National Center researchers have received many professional awards and honors, and a list of those received in FY 2016 is included above. Please see Appendices A (Research Narrative) and B (Funding) at the back of this Annual Report for a complete listing of research projects, key investigators, collaborating/partner agencies, and associated funding sources.
Promoting PTSD Education: Training, Dissemination, Communication

The National Center maintains an extensive array of educational products and programs, aimed at ensuring that the most current understanding of PTSD reaches the people who need it most: the Veterans themselves and the clinicians who are entrusted with their care. The two-way communication between researchers and VA clinicians offers opportunities for National Center professionals to both teach and learn from providers in the field. The multisite structure and collaboration with government agencies, universities, and health care organizations provide a network of contacts that can be used to disseminate the latest knowledge to the many constituencies that are involved in PTSD care.

During FY 2016 National Center staff members published hundreds of articles in scholarly journals, delivered dozens of talks and workshops, and responded to requests for consultative support from organizations and individuals throughout the US and around the world. In addition, the National Center remains active in the use of new technologies in its educational efforts, including a vast collection of online resources and mobile apps.

PTSD Awareness and Engagement in Treatment

The first step to encouraging people to seek treatment for PTSD is helping them recognize that they may have a problem that treatment can solve. AboutFace is an award-winning website that features short videos by dozens of trauma survivors talking about how they successfully overcame the perceived stigma of PTSD and other obstacles to seeking help. In FY 2016 AboutFace added digital storytelling, which utilizes video, text, and photos to recount the stories of two Veterans who received evidence-based PTSD treatment in VA. Many of the Veterans interviewed in AboutFace are also featured in Understanding PTSD and PTSD Treatment, a new brochure that clearly explains the causes of PTSD and describes the available treatments.

Choosing among those treatments can be complicated, however, because there is no single treatment that works for everyone and little guidance on which treatments best address individual patients' needs. The online PTSD Treatment Decision Aid, completed in 2016, helps patients learn about the benefits and risks of evidence-based treatment options and guides them in clarifying their preferences and treatment goals.
Self-Help and Treatment Companion Resources

The National Center, in partnership with the Department of Defense (DoD), launched the first publicly available VA mobile app in 2011: the award-winning PTSD Coach. Since then the National Center has launched fourteen mobile apps in total, all available to the public free of charge. Three new apps were launched in FY 2016: Mood Coach, which encourages people to engage in the activities they enjoyed in the past as a way to boost mood; VetChange, which targets problem drinking patterns and PTSD symptoms; and PTSD Family Coach, designed to support family members of people with PTSD. Developers also continued to improve existing apps, updating their content and functionality and releasing Android versions of apps previously only available for Apple devices.

Research has shown that Veterans who struggle with problem drinking often have PTSD symptoms as well. VetChange, available both as an app and in a desktop version, is a self-management program for Veterans that addresses both issues. Research on an initial version of VetChange showed that it helped many Veterans reduce both their alcohol consumption and PTSD symptoms, and the National Center has since developed a more robust version of that original program. The site was visited by more than 7,000 users in FY 2016, with more than 400 Veterans creating user accounts. It is currently available on a non-VA server but will be moved to a VA server in 2017, a change that is expected to markedly increase usage by Veterans.

Cognitive Processing Therapy (CPT), Prolonged Exposure (PE), and Eye Movement Desensitization and Reprocessing (EMDR) have long been the leading evidence-based interventions for PTSD. Increasingly, however, providers and patients are looking for treatments that target symptoms that may not be central to the disorder but are often troubling to patients. STAIR (Skills Training in Affective and Interpersonal Regulation) is intended to enhance patients’ emotion regulation and interpersonal functioning. An online STAIR training for providers was launched in 2013, and development continued in FY 2016 on a self-help version of the intervention that will debut on the National Center’s website in 2017.

Three New Apps Launched in FY 2016

| MOOD COACH | VETCHANGE | PTSD FAMILY COACH |
Educational Resources for Professionals

The core of the National Center’s continuing education offerings is the flagship PTSD 101 series, which offers a collection of more than 30 hour-long courses. Five new courses were added in FY 2016: The Dissociative Subtype of PTSD; Practical PTSD Assessment; Engaging Patients in PTSD Treatment; Understanding Pathways from Trauma Exposure to Physical Health; and Impact of Deployment-Related Risk and Resilience Factors on Postdeployment Mental Health.

Web-based continuing education offerings have been expanded in recent years to include advanced multi-module courses on specialized treatment approaches. These courses incorporate video vignettes, step-by-step guidance, and patient materials that can help providers integrate the interventions into their practices. Current courses include STAIR, Managing Anger, and Assessment and Treatment of Sleep Problems in PTSD. Offerings have also been available through TRAIN (TrainingFinder Real-time Affiliate Integrated Network) since 2015. This forum reaches a wide audience, including community-based providers, trainees, and researchers. TRAIN also makes it easy for all learners — both within VA and in the community — to earn free continuing education credits.

During FY 2016 National Center staff, in response to requests from clinicians, researchers, and disability raters, worked on developing a comprehensive online training on the Clinician-Administered PTSD Scale-5 (CAPS-5). The course, which will launch in 2017, gives learners a full understanding of the requirements for administration and scoring of the instrument. The National Center plans to develop an additional course that uses cutting-edge Responsive Virtual Human Technology (RVHT).

The Published International Literature on Traumatic Stress (PILOTS) online 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 is a cross-disciplinary index that has grown to include 56,000 items, providing free access to the world’s scholarship on psychological trauma and its consequences. While providers and researchers are the main audience for PILOTS, it is also available to students, the media, and members of the general public who have an interest in PTSD. The system also allows users to download the full text of articles written by National Center staff members, thereby increasing the reach of the Center’s research. In FY2016 users ran more than 28 million searches in the database.1*

Beginning in FY 2016, the Resource Center has been able to obtain improved usage statistics from the database vendor. Therefore, this number cannot be accurately compared to prior years’ figures.

Support for Providers in the Field

The National Center is committed to supporting clinicians in the field, providing them with information, training, and resources to help them find the best ways to help the Veterans in their care. Over the past decade, VA has trained more than 6,300 mental health clinicians throughout the Veterans Health Administration (VHA) in CPT and PE. To increase familiarity, acceptability, and uptake of a range of recommended practices, the National Center has created

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1* Beginning in FY 2016, the Resource Center has been able to obtain improved usage statistics from the database vendor. Therefore, this number cannot be accurately compared to prior years’ figures.
requests from community providers more than doubled last year, while requests from VA providers continued to grow as well. The program responded to an average of 114 requests per month, with almost a third of all requests coming from outside VA.

Beginning in 2008 with the CPT and PE national training initiatives, the National Center launched the VA PTSD Mentoring Program. The program connects program directors with seasoned PTSD professionals within their regions who act as mentors. This year the Mentoring Program developed the PTSD Clinical Team Manager Toolkit, an online course designed to promote best practices in the clinical and administrative components of specialty care.

Complementing these national efforts, the Executive Division of the National Center has received funding from the VA Office of Rural Health to use academic detailing to improve the treatment of Veterans in Vermont and New Hampshire. In this program a clinical pharmacist works one-on-one with prescribing clinicians to foster

the PTSD Practitioner Registry, which links participating providers in VA, DoD, and the community with practical information related to 25 best practices, including CPT and PE.

The PTSD Consultation Program began in 2011 with the mission to connect VA providers with expert PTSD consultants. The program was expanded in 2015 to offer consultation and resources to community providers outside VA who see Veterans with PTSD. The program’s consultants are available via phone or email, answering questions and providing information about treatments. The effort to reach more providers has been supported by a targeted web-based marketing campaign. Consultation

Increasing Referrals to Psychotherapy and Reducing the Prescribing of Benzodiazepines for PTSD

The Executive Division of the National Center received funding from the VA Office of Rural Health to use academic detailing to improve the treatment of Veterans in Vermont and New Hampshire. Three of the infographics developed through this program were awarded first place in the VHA Communication Awards in 2016.
the provision of evidence-based PTSD care, including increasing referrals to psychotherapy and reducing the prescribing of benzodiazepines for PTSD. Three of the infographics developed through this program were awarded first place in the VHA Communication Awards in 2016. The program has also developed an online tool to help providers safely taper patients off benzodiazepines.

Implementation of best practices requires moving beyond targeting individual providers to looking at facilitators and barriers at the organizational level. Researchers from the National Center and the Chronic Disease Outcomes Research Center have collaborated to examine organizational factors that influence the usage of these treatments in ten PTSD clinics. They found that successful teams — those that routinely used evidence-based treatments with more than 40% of their patients — were organized around a primary mission to deliver time-limited treatments, and they had leadership support, clinic operations, and team cultures that facilitated delivery. The findings have been shared with VA mental health leadership, and are informing continuing efforts to advance the delivery of these treatments to Veterans.

The Mentoring Program has also addressed organizational issues. Mentors work with program directors to help them meet the increased demand for treatment by restructuring existing programs and implementing best practices. An in-person meeting held this year gave program participants an opportunity to discuss the impact of the Measurement Based Care initiative on clinic practices. Next year’s face-to-face meeting will focus on building organizational structures to foster the provision of evidence-based PTSD care.

The Practice-Based Implementation (PBI) Network is a standing network of VA PTSD field sites that are collaborating with National Center researchers to test new practices and find ways to achieve their implementation. The PBI Network provides a way to pilot new approaches and derive lessons learned before moving to nationwide implementation. The PBI Network has been used to accelerate uptake of Measurement-Based Care, and is now helping clinicians integrate phone and Internet technologies into care.

Fiscal Year 2016 Stats at a Glance

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170,511 Downloads of 14 Mobile Apps
About the National Center for PTSD

History
The National Center for PTSD was created in 1989 within the 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 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 established the 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. Other divisions are located in Boston, Massachusetts; West Haven, Connecticut; Palo Alto, California; and Honolulu, Hawaii; and each contributes to the overall Center mission through specific areas of focus.

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

National Center for PTSD Quick Facts
- The National Center for PTSD was formed in 1989.
- The staff is comprised of top professionals in the field, located in seven divisions across the US.
- 100 externally funded studies and 361 publications in FY 2016.
Leadership in Fiscal Year 2016

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

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

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

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

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

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

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

Tara E. Galovski, PhD
Division Director
Women’s Health Sciences Division, MA
Associate Professor of Psychiatry, Boston University School of Medicine
## Advisory Boards

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Columbia University Mailman School of Public Health

**Farris Tuma, ScD**  
National Institute of Mental Health

**COL Carl A. Castro, PhD**  
Center for Innovation and Research on Veterans and Military Families; University of Southern California

**Alfred Montoya, MHA**  
White River Junction VA Medical Center

**Robert Ursano, MD**  
Uniformed Services University Medical School

**Bradford L. Felker, MD**  
VA Puget Sound Health Care System; University of Washington School of Medicine

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San Francisco VA Medical Center; University of San Francisco School of Medicine

**Ex-Officio: Theresa Gleason, PhD**  
VA Clinical Science Research & Development

**JoAnn Kirchner, MD**  
VA Mental Health Quality Enhancement Research Initiative, Central Arkansas Veterans Healthcare System; University of Arkansas for Medical Sciences

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University of Texas Health Science Center

**Barbara O. Rothbaum, PhD, ABPP**  
Emory University School of Medicine

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National Center for Veterans Studies, The University of Utah

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Iraq and Afghanistan Veterans of America

**COL Dave Benedek, MD, LTC, MC, USA**  
Uniformed Services University of the Health Sciences

**Ann Feder, LCSW**  
James J. Peters VA Medical Center

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

**Thomas J. Berger, PhD**  
Vietnam Veterans of America

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

**David S. Riggs, PhD**  
Center for Deployment Psychology, Uniformed Services University of the Health Sciences

**Michael R. Kauth, PhD**  
VA South Central MIRECC
Appendix A: Fiscal Year 2016 Research Narrative

Executive Division
The Executive Division, located in White River Junction, Vermont, provides leadership, directs program planning, and promotes collaboration to facilitate optimal functioning of the Divisions, both individually and collectively. The Executive Division specializes in the development of innovative and authoritative educational resources, programs that disseminate and implement best management and clinical practices, and the use of technologies to reach a broad range of audiences.

VA National PTSD Brain Bank
Under the direction of Dr. Matthew Friedman, Senior Advisor to the Center and its founding Executive Director, the National Center continued to coordinate the first VA National PTSD Brain Bank. The 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 assessment and treatment.

Enrollment of potential post-mortem donors began in May 2015, with the launch of the Brain Bank website. Since then it has expanded to a seven-part consortium, with facilities at the Miami, Durham, Boston, San Antonio, West Haven, and White River Junction VA Medical Centers and the Uniformed Services University of the Health Sciences (USUHS). As of the end of FY 2016, the Brain Bank had 149 PTSD and comparison tissue specimens. Currently 44 prospective donors have volunteered to be followed over their lifetimes and another six are expected to volunteer soon.

The Clinical Neurosciences Division in West Haven, Connecticut, serves as the primary research site for the Brain Bank. Publications from Brain Bank data have so far identified SGK1 (serum and glucocorticoid-regulated kinase) as a molecular mechanism of PTSD and found that metabotropic glutamatergic receptors, a key signaling molecule, are increased in several brain regions, including the prefrontal cortex, in PTSD patients. Planned analyses at the genetic, cellular, and molecular levels, as well as work in neuroproteomics (i.e., related to synaptic connections) and preclinical rodent models, could lead to the identification of long-term neurobiological changes induced by chronic stress.

Treatment Research
The Executive Division has a long history of participation in VA’s Cooperative Studies Program (CSP). Enrollment continued for CSP #591, a groundbreaking study comparing two treatments for PTSD: Cognitive Processing Therapy (CPT) and Prolonged Exposure (PE). The study, which to date has enrolled over 600 male and female Veterans, will eventually enroll 900 Veterans at 17 sites across the country. The study’s findings will help VA leadership, clinicians, and Veterans make informed choices about the delivery of PTSD care in VA, and will also be broadly relevant to the scientific and clinical communities outside VA.

The Executive Division also participates in trials to investigate new treatment approaches for trauma-exposed individuals; the primary outcome paper for the Acceptance and Commitment Therapy (ACT) trial is online ahead of print.

Investigators continue to focus on disorders that frequently co-occur with PTSD. Recruitment was completed for a trial comparing two treatment approaches for Veterans with PTSD and substance use disorders: CPT plus usual outpatient addiction care versus usual care alone. A second trial, which has 115 of 120 participants randomized, compares two psychotherapies — Prolonged Exposure (PE) and Seeking Safety — for comorbid alcohol use disorder and PTSD.

Recruitment was recently launched for a trial to evaluate a brief protocol to reduce guilt and shame related to a traumatic event among Veterans who served in Iraq and Afghanistan. Investigators also continue collaborations with the PTSD specialty clinics and the residential PTSD/substance use treatment program at the San Diego VA to develop ways to use clinical data for research.

Implementation Research
The Executive Division continues work on several initiatives aimed at assessing models of care and improving evidence-based practice. In one study, investigators surveyed a national sample of Veterans and civilians to assess their decision-making needs and preferences for PTSD treatment; the recently published results are informing the development of the first publicly available online decision aid for PTSD.
Another recent initiative examined the impact of an academic detailing model to reduce inappropriate prescribing practices for PTSD patients and uses decision support tools to encourage the use of shared decision making. An extension of that initiative will examine whether using telehealth and a clinical pharmacist in an academic detailing model can improve local PTSD prescribing practices in rural clinics throughout Vermont and New Hampshire.

In addition to projects aimed at improving clinical practices, investigators are continuing to assess the state of VA care for PTSD. Work is continuing 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.

### Behavioral Science Division

The Behavioral Science Division in Boston, Massachusetts, conducts research on post-deployment adjustment, aging and health, assessment, genomic and neuroscience mechanisms of psychopathology, and innovative approaches to intervention and treatment delivery.

#### Longitudinal Studies

Project VALOR (Veterans After-Discharge Longitudinal Registry) is a prospective cohort study involving a registry of 1,649 male and female combat Veterans who became users of VA services after 2002. The project is collecting data about health outcomes associated with PTSD, supplemented by clinical information from VA electronic medical records. Data collection for the third sampling wave is now complete, with retention of 89% of the second wave (1202 of 1340 participants). The next phase of data analyses will begin soon.

The Neurocognition Deployment Health Study began collecting data 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 stemming from this research have described PTSD outcomes, neuropsychological outcomes, and the relationships among these outcomes, PTSD symptoms, and traumatic brain injury (TBI). Data collection on an associated study that examines the adjustment of both partners and children of the Servicemembers and Veterans in the cohort was completed in June 2016.

Collaboration with other investigators from the VA Boston Healthcare System is advancing a multidisciplinary approach to research focused on the long-term effects of military service on health and well-being, including PTSD, in later life. This effort has led to the creation of a website that provides researchers with information about military service variables associated study that examines the adjustment of both partners and children of the Servicemembers and Veterans in the cohort.

The next phase of data analyses will begin soon.

Biomarker research at the Division also includes a rapidly growing portfolio of genetic and epigenetic studies in collaboration with the Translational Research Center for TBI and Stress Disorders (TRACTS) Center of Excellence, the Brain Bank, and the Psychiatric Genomics Consortium PTSD Workgroup. These studies have revealed that PTSD-related metabolic syndrome is associated with widespread reductions in cortical thickness, along with evidence for a genetic contribution to this association. Meta-analytic findings have shown that PTSD is associated with reduced amygdala and hippocampal volume, and confirmed previous findings that PTSD is associated with accelerated cellular aging in the epigenome. Related research based on data from the Vietnam Era Twin Registry suggests matching genetic architecture for PTSD and resilience, implying that there is need to refine the construct of traumatic stress to align with its genetic structure.

Finally, Division researchers are conducting functional and structural magnetic resonance imaging (MRI) studies to identify neural circuitry involved in PTSD. Structural MRI data point to specific hippocampal subfield volumes that are negatively correlated with PTSD and that may be related to the persistence of PTSD symptoms. Preliminary data for functional MRI (fMRI) projects also suggest specific brain regions within the prefrontal cortex that are active when individuals with projections.
PTSD manage negative emotions. The findings suggest brain pathways that could be targeted to enhance emotional regulation and cognitive performance.

**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 trial produced evidence of effectiveness in reducing both drinking and PTSD symptoms. A second version was constructed as a mobile-friendly public website, and this version is now under evaluation. A mobile app with key VetChange features, developed in conjunction with the Dissemination and Training Division, will begin a pilot test phase soon. In addition, a major extension of the VetChange web intervention is underway, with investigators looking to integrate VetChange directly into clinical care delivered by VA providers and to evaluate its effectiveness in VA clinics.

Researchers are working to develop and test efficient therapist-delivered interventions or treatment extenders, with the expectation that these new approaches will require less professional staff time and will be easier for patients to complete. One example is a brief, exposure-based treatment for PTSD that in the past has demonstrated strong effectiveness with non-Veteran patients. Current and future studies are testing whether this brief intervention is as effective as 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 to reduce and prevent aggression within families of Iraq and Afghanistan Veterans. Clinical trials examining two such interventions were completed and positive results were published in 2016. These intervention programs are currently being implemented at multiple sites in the VA and on one military installation. A new pilot study will focus on adapting and examining one of these programs in an underserved urban civilian setting.

In the area of complementary interventions, a pilot study investigating Tai Chi exercise for PTSD-related distress has demonstrated high satisfaction and enthusiasm on the part of Veteran participants. An upcoming five-year study will compare Tai Chi with a wellness intervention and measure the impact of these two interventions on chronic pain experienced by Veterans with Gulf War Illness, a set of chronic, medically unexplained symptoms that afflicts some Veterans of that service era.

Division investigators are examining a phenomenon termed later-adulthood trauma re-engagement (LATR), in which older combat Veterans actively re-engage with wartime memories in an effort to build coherence or find meaning; the LATR process could have the potential to lead to either growth and positive outcomes or to 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. Two cohorts are complete, and recruitment for the third cohort is ongoing.

Research is being conducted into the efficacy of transcranial, low-level light (t-LLLT) as a treatment for PTSD and comorbid conditions. Some preclinical studies have shown that exposure to red and near-infrared light re-establishes normal mitochondrial functioning in damaged brain cells. This approach is used to treat a variety of animal and human conditions, but application to psychiatric and neurological conditions is a relatively recent undertaking. The therapy t-LLLT intervention is being tested in two studies, one involving Veterans with Gulf War Illness and another involving Veterans with PTSD and TBI.

**Assessment**

A recent study looked at proposed revisions to the PTSD diagnosis in the International Classification of Diseases (ICD-11) using network models. Another study evaluated the new Minnesota Multiphasic Personality Inventory (MMPI-2) Restructured Form scales in relation to the assessment of DSM-5 PTSD, the dissociative subtype of PTSD, and PTSD-related malingering. New data collection also is underway that will evaluate the utility of the MMPI-2 Restructured Form scales in relation to PTSD-related chronic pain and other chronic pain outcomes. A product of past work is a new published measure to assess the dissociative subtype of DSM-5 PTSD (Dissociative Subtype of PTSD Scale); it is available for download on the National Center’s website.

Division investigators are participating in a consortium of private industries, universities, and government agencies that are working with the Defense Advanced Research Projects Agency (DARPA) to develop analytical tools to assess the psychological status of Warfighters. The current effort applies machine learning methods developed from the initial project to the extensive TRACTS dataset. The primary aim is to be able to predict various outcomes, including PTSD, TBI, and suicide risk. In addition, a collaborative study with investigators from Harvard University tests new methods for measuring and modifying cognitive processes related to suicidal behavior among Veterans.

A pilot study has been completed for a project designed to inform postmortem donor classification for the Brain Bank. Individual incidence of PTSD and comorbid disorders is...
determined on the basis of data collected directly from living elderly Veterans. This information is then used to evaluate the predictive potential of information drawn from an informant interview and medical record review. The aim is to determine the best predictors from indirect sources and to provide a template for use by the Brain Bank.

Clinical Neurosciences Division

The Clinical Neurosciences Division (CND), located in West Haven, Connecticut, focuses on the neurobiology of traumatic stress, investigating paradigms of risk and resilience, and pharmacotherapeutic interventions for the treatment of PTSD and comorbid conditions. Publications and presentations are also an important part of CND’s work, and in FY 2016 the Division launched Chronic Stress, a new peer-reviewed scientific journal that focuses on the neurobiology, assessment, and treatment of the behavioral and biological effects of stress.

Molecular Neuroimaging

The Division has been in the forefront of the development of new technologies and methods to non-invasively investigate human brain chemicals, structure, and function. CND was the first group to identify alterations in specific signaling molecules in Veterans using single-photon emission computed tomography (SPECT) and positron emission tomography (PET) technologies.

Recent work in this area has shown that a key signaling molecule, metabotropic glutamatergic receptor (mGluR5), is present at higher levels in people with PTSD. Work continues in this area, examining ketamine-induced changes within mGluR5 and studying how these changes may be related to disruptions in behavioral and cognitive functioning, resting state connectivity, and receptor internalization. This novel paradigm has been studied in healthy control participants and in PTSD and depressed patients.

Research in this area is providing a better understanding about alterations in specific regulatory processes involved in PTSD — that is, the “switches” that might correct and normalize aberrant biochemical changes. Division investigators intend to continue this work by linking patient data to post-mortem data from the Brain Bank. This approach will determine whether increases in mGluR5 occur in conjunction with increased gene expression by a protein holding mGluR5 in the synapse but not by an increase in gene transcription. Other projects are investigating mGluR5 availability in comparative samples of PTSD, major depression, bipolar disorder, and healthy control participants to look for similarities and differences across these disorders.

Neuroinflammation is the focus of another study using PET technology. A neuroimmune challenge is being used to evaluate the role of activated microglia in mediating the expression of PTSD, as well as to study the relationship between peripheral inflammatory markers such as TNF-α, and trauma-related symptoms. Measuring the distribution of activated microglia in the brain is made possible using a new PET tracer for the translocator protein, so that components of the neuroinflammatory process can be studied non-invasively.

By characterizing the type and extent of neuroinflammation in PTSD, it may be possible to uncover new mechanisms of treatment with anti-inflammatory agents.

Division investigators are conducting a number of synaptic protein level (SV2a) studies, using both preclinical and clinical participants in stress models. Synaptic loss is known to be a contributor to treatment failure in PTSD, and this research explores whether stress-related loss of synaptic connectivity compromises the circuits involved in mood regulation. By using a PET tracer for SV2a, researchers are able to quantify the density of synapses in the brain. Preclinical work with SV2a includes examination of synaptic density in nonhuman primates after administration of drugs that have been shown to rapidly increase synaptic density in rodent models. Clinical work includes measuring SV2a levels in patients diagnosed with depression and PTSD, as well as examining postmortem samples.

Another area of focus during the year included a series of projects utilizing a novel Carbon-13 magnetic resonance spectroscopy (13C-MRS) paradigm, providing for a non-invasive measurement of glutamate neurotransmission. This work revealed two important findings: global brain connectivity was identified as a putative marker for stress-related synaptic pathology and as one possible mechanism of action for antidepressants; and anterior hippocampal dysconnectivity (functional and anatomical) was observed in Veterans with high PTSD symptoms. Based on these results, the Division will continue research that tests the efficacy of glutamate based drugs, while also investigating underlying neural mechanisms and synaptic strength in the pathophysiology and treatment of PTSD and depression.

Additionally, CND investigators plan to establish graph network based measures and machine learning approaches to identify disorder-specific biomarkers related to PTSD and depression. Graph theory can be used to evaluate changes in the way that brain networks communicate and interact, as well as the consequence or cause of some changes. Similarly, investigators will attempt to characterize psychopathology by investigating patterns of connectivity. Preliminary work
in this area was conducted over the past year via univariate analyses that distinguished between dimensions of PTSD. To expand upon this work, investigators will employ high quality multimodal neuroimaging scans and well established functional and connectivity measures to conduct a proof of concept study using artificial intelligence to predict diagnoses and PTSD severity. This study will be the first to combine state-of-the-art graph-based and voxel-wise data-driven measures (as opposed to cluster- or seed-based, \textit{a priori} measures) of anatomical and functional connectivity along with current multi-voxel pattern analysis algorithms.

The Division is also participating in the PTSD research efforts of the Psychiatric Genomics Consortium and ENIGMA, which together have assembled the largest collection of MRI data in PTSD patients. The initial results from this collaboration replicate CND’s first MRI study in showing evidence of smaller hippocampal volume in PTSD.

**Genetic Studies**

Genetic and epigenetic research in support of the Research Domain Criteria (RDoC) initiative of the National Institute of Mental Health (NIMH) continued. This work aims to characterize psychosocial, genetic, environmental, and genetic/environmental determinants of PTSD. A major focus is identification of risk factors for PTSD, as well as protective psychosocial factors that promote resilience.

One recent genetic study using data from the National Health and Resilience in Veterans Study (NHRVS) examined the relationship between forms of FK506 binding protein 5 (FKBP5), childhood abuse, and the risk for PTSD in Veterans. It was found that these substances directly interacted with childhood abuse and were associated with increased severity of PTSD symptoms. These findings further suggested that the associations are specific to the hyperarousal symptoms of PTSD.

Other work examining associations between oxytocin receptor gene (OXTR) polymorphisms and PTSD revealed that the OXTR single nucleotide polymorphism (SNP) rs53576 minor A allele is associated with increased risk for PTSD, and that this relationship was especially strong for individuals who reported insecure adult attachment. Investigators also examined psychosocial determinants of accelerated cellular aging in Veterans. Results revealed that accelerated cellular aging is associated with hostility, particularly difficulties controlling anger, as well as negative age stereotypes, such as believing that depression is an inevitability of aging.

**Treatment Research**

The Division’s clinical trials program has continued to grow. By combining neuropharmacology and neuroimaging to study mechanisms of action and treatment response, researchers aim to develop biomarkers that lead to better matching of patients to treatments. Pharmacotherapeutic agents currently under study include riluzole, a glutamate modulating agent; ketamine, a N-Methyl-D-Aspartate (NMDA) receptor antagonist drug; neuropeptide Y, an endogenous neuropeptide; intranasal oxytocin, a peptide hormone; and the immunosuppressant rapamycin.

Ketamine, an agent known to interact with glutamate and to rapidly reverse the damaging effects of stress on neurons, is being studied specifically for its effects in treatment-resistant PTSD. Ketamine is also the subject of a number of other trials, including an assessment of the potential benefit of intense seven-day PE therapy combined with a single ketamine infusion; a study of ketamine’s ability to improve cognitive functioning using a single intravenous dose to study visual, verbal, and working memory in PTSD; and a study of the interactive effects of ketamine and guanfacine on activation and connectivity of the locus coeruleus, a prominent brain region for hyperarousal in PTSD.

As part of the National Center’s work on NMDA receptor antagonist drugs, including ketamine and lanicemine, Division researchers also completed a scholarly review looking at the potential use of these medications to prolong the therapeutic effects of cognitive behavioral therapy, as well as their effects as rapid-acting antidepressants for the treatment of suicidal thoughts. This work has led to consultation with the American Psychiatric Association to develop consensus guidance on the clinical use of ketamine for the treatment of psychiatric disorders.

Investigations continue studying the neural mechanisms of fear and safety learning in Veterans with PTSD in order to better understand the process of fear extinction and to develop treatment strategies. Data collected from a study of the neural correlates of decision making in PTSD patients demonstrated that aversion to ambiguity helped to explain the relationship between combat exposure and the level of anxious arousal in PTSD. One component of this research is using fMRI technology, and preliminary findings are promising. The team is now expanding this work to further study the relationship between substance use and PTSD symptoms.

Finally, the pilot phase of a study utilizing real-time fMRI neurofeedback for the treatment of PTSD has been completed and published. Examination of changes in resting-state functional connectivity patterns in the pilot data revealed normalization of brain connectivity consistent with clinical improvement. These preliminary results suggest that this emerging technique has potential clinical utility in treatment of PTSD. Additionally, a treatment trial comparing standard care to an intensive integrated treatment for Veterans with PTSD and comorbid chronic pain completed enrollment and is scheduled for data analysis.
Appendix A: Fiscal Year 2016 Research Narrative

(Epidemiology Continued)

Epidemiology
Several additional studies using data from the NHRVS and the World Trade Center (WTC) Health Program were conducted during 2016. Recent projects have focused on the epidemiology of DSM-5 PTSD in U.S. Veterans, and on trajectories and latent typologies of PTSD in WTC responders. Other work looked at the prevalence and determinants of late-life re-emergence or exacerbation of PTSD symptoms in older Veterans, and revealed that approximately 10% have these experiences on average nearly 30 years after the trauma. Greater executive dysfunction, trauma burden, loneliness, and reductions in social support were associated with this re-emergence or exacerbation of symptoms.

A series of studies using the NHRVS data were conducted on the prevalence, course, and determinants of posttraumatic growth (PTG) in Veterans. Results revealed that 50% of Veterans, including 72% of those with PTSD, experienced PTG in relation to what they described as their “worst” traumatic event; specifically, those with PTSD reported better mental functioning and quality of life. Key predictors of PTG included experiencing a life-threatening illness or injury, having greater severity of re-experiencing symptoms, and enjoying higher levels of social connectedness, purpose in life, and altruism. PTG, particularly perceptions of greater personal strength following one’s “worst” traumatic event, was also associated with lower risk of developing PTSD in response to a new trauma, suggesting that PTG may help trauma survivors develop coping skills to better manage subsequent traumas and stressful life events.

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

Patient Needs and Preferences
The Division has undertaken several studies on the development and evaluation of strategies to quickly identify patient needs, patients at risk, and patient preferences. A current study funded by Health Services Research & Development (HSR&D) 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 resources needed to engage Veterans and encourage them to continue with treatment. A second and related study is focusing on the development and cross-validation of a hospital risk screening tool that can provide guidance about the type and intensity of mental health services that might benefit patients.

Two studies concern substance use: one is evaluating a brief screen for drug use among primary care patients with and without PTSD. The other examines barriers to cannabis treatment among Veterans with PTSD. Along with collaborators at the Women’s Health Sciences Division, staff at the Division also completed research and evaluation work on screening and treatment of military sexual trauma (MST).

Treatment Research
Randomized controlled trials that are evaluating patient outcomes under various delivery strategies in a variety of treatment settings and using novel interventions are underway. One large multisite clinical trial has been completed and will assess the effectiveness of a flexibly delivered evidence-based PTSD skills-plus-exposure treatment among civilian public sector women and will examine how variations in delivery affect patient outcomes. Another study is evaluating adaptive changes in cardiac autonomic status, physical activity, social cognition, and social interaction in real time among Veterans participating in the VA Service Animal Training Intervention program.

Three new trials address substance use disorders: a project evaluating cognitive remediation for alcohol abuse and PTSD; an evaluation of ACT in patients with comorbid PTSD and substance use problems; and an evaluation of the effectiveness of exercise in resolving cannabis dependence. Evaluation of the national rollout of PE therapy continued, with recent results confirming PE’s effectiveness in a national sample of more than 1,800 Veterans.

Technology-based Treatments and Treatment Delivery
Several ongoing studies are assessing the benefits of phone and web-based technology to increase Veteran access to mental health care and to enhance outcomes. Following two successful pilot studies of PTSD Coach, a new project will assess the efficacy of this treatment compared to treatment as usual in reducing PTSD symptoms in Veterans who are receiving service in a primary care setting. Other mobile phone apps under study include PTSD Family Coach, an app for family members of individuals with PTSD intended to reduce stress among family members; Parenting2Go; Mindfulness; and Cognitive Behavioral Therapy for Insomnia (CBTi).

A study in a national sample of trauma-exposed individuals compared the effectiveness of web-based “brain games” versus “games as usual.” The brain games were more effective for PTSD symptoms and emotion regulation than “games as

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(Dissemination and Training Division Continued)

usual, but this effect was only observed in individuals with low to moderate PTSD symptoms. The first investigation of Moving Forward, a web-based problem-solving intervention, has been completed; findings suggested that it was helpful in reducing PTSD symptoms.

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

Implementation Research

A current implementation project is evaluating competing strategies intended to enhance and sustain the delivery of a PTSD treatment, where one strategy emphasizes fidelity to the protocol through expert consultation and the other focuses on improving fit of the intervention to the environment through continuous quality improvement. Division researchers are also conducting a trial that focuses on increasing awareness of, receptivity to, and implementation of clinical practice guidelines for management of traumatic stress. Investigators from the Division and the Minneapolis VA have completed a study that identifies organizational factors that differentiate VA PTSD clinics with high and low reach of evidence-based psychotherapies.

The Department of Defense (DoD) is funding an investigation of the use of Web technology to train clinicians in evidence-based treatments, and testing variations in training procedures as they affect quality of skills in implementing the treatments. A long-term project is working to develop a practitioner network across both VA and DoD that will assess the benefits of the implementation of measurement-based care (MBC), specifically on the use of symptom measures during the course of treatment to guide treatment planning.

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 changes on the outcome of interest is predicted in a data-driven fashion. The model has the potential to guide decisions about system changes in a manner that is collaborative, evidence-based, and cost effective.

Evaluation Division

The Evaluation Division, headquartered in West Haven, Connecticut, is linked to VA's Northeast Program Evaluation Center (NEPEC). NEPEC has broad responsibility within the Office of Mental Health Operations (OMHO) to evaluate their programs, including those for specialized treatment of PTSD.

Treatment Research

NEPEC has continued to monitor and assess PTSD treatment at VA, including residential and outpatient specialty treatment programs and PTSD treatment by trained providers not working within one of the specialty programs. The Evaluation Division also monitors the efforts to improve psychotropic medication prescribing practices at the Veterans Health Administration (VHA). Two of the measures being investigated in this initiative are the use of off-label antipsychotics to treat PTSD and the use of benzodiazepines.

The Evaluation Division continues research on PTSD health services, pain management, and the role of pain in the treatment of PTSD. Data collection has been completed for a NIMH project investigating the implementation of CPT and PE in 38 VA residential treatment programs. Published findings include provider perspectives on perceived effective residential treatment ingredients, provider perceptions of factors that support the use of CPT and PE, and changes in implementation of CPT and PE over time.

A number of investigators are using administrative data to explore treatment patterns and outcomes of PTSD care. Studies have been published on medication use for the treatment of PTSD, as well as factors that correlate with self-reported PTSD symptoms over time. Over the next year the Evaluation Division will examine further the role of pain in specialized PTSD treatment and in the treatment of comorbid disorders.

The national psychotropic drug safety initiative (PDSI) has entered its third year and has been tracking data on changes in prescribing practices for PTSD. The Division continues to work with the Mentoring Program and OMHO to provide technical assistance and to respond to requests from specialized programs and staff in the field on policy, operations, handbook implementation, and the use of evidence-based practices.

Gender-Related Issues

The Division is involved in research on gender-related issues. Recruitment has been completed for the Survey of Returning Veterans (SERV), a repeated panel study of gender differences in psychiatric status and functioning among Veterans of Iraq and Afghanistan. The 850 participants — more than 40% of whom are female — were interviewed at three-month intervals for at least a year, and a sizable subset continued for
Appendix A: Fiscal Year 2016 Research Narrative

(Evaluation Division Continued)

as long as three years. Analyses of the data have begun, and the Division is making the data available to investigators who want to do add-on or other primary data collection studies.

Papers have been published on MST and PTSD as they relate to unit cohesion, gender differences in prevalence rates of disorders over time, and characteristics of Veterans reporting sex addiction.

Measurement Based Care
A new national VA initiative, Measurement Based Care in Mental Health, was formally launched by Mental Health Services and OMHO, and now has 58 hospitals and 179 mental health clinics enrolled as Champion Sites for implementation. Two Division staff members are supporting the initial pilot program evaluation; members of both the Executive and Dissemination and Training Divisions are involved in the senior leadership of the initiative. Additional investigators from within the National Center may be closely involved in the evaluation study itself.

Pacific Islands Division
The Pacific Islands Division in Honolulu, Hawaii, advances PTSD work in the Pacific Rim. The Division also focuses on improving understanding of cultural attitudes and using advanced technologies to reach out to Veterans in remote locations who are unable to access evidence-based care.

Specific Populations
Several ongoing studies examine ethnic minority populations with regard to prevalence of PTSD, response to treatment, and related mental health comorbidities. The studies identify unique risk and resilience correlates of PTSD among ethnically and racially diverse Veterans, as well as identifying their response to evidence-based PTSD treatments.

Researchers have also studied whether there are racial and ethnic differences between patients who drop out and those who continue with VA psychotherapy and pharmacotherapy for PTSD, and in providers' perceptions of reasons for patient dropout from treatment. An ongoing study using the same database examines racial and ethnic disparities in PTSD symptoms and mental health quality of life among Veterans six months after the PTSD diagnosis.

Treatment Research
Investigators are in the final year of completing a large trial that examines Veterans’ preferences for different methods of delivery of treatment. The project is also evaluating the clinical efficacy of three different approaches to providing PE: two involving technology, and one involving providers going to the Veteran's home. Division researchers also launched a new trial examining the clinical efficacy of Cognitive-Behavioral Conjoint Therapy (CBCT), a couples-based intervention for PTSD, and the use of home-based care, as compared to traditional office-based care, when working with Veterans and their partners.

Women's Health Sciences Division
The Women's Health Sciences Division, located in Boston, Massachusetts, specializes in the study of women Veterans, with an additional focus on understanding gender differences in trauma exposure and post-trauma psychopathology.

Biomarkers
Division investigators have undertaken a number of studies aimed at understanding the basic biological processes underlying PTSD. Recently completed projects include data analysis on a study of sex hormones and derivatives associated with decreased extinction retention across the menstrual cycle in PTSD; a study of GABAergic neuroprotective steroids in men and in women across the menstrual cycle; 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; an analysis of plasma predictors of PTSD and comorbid psychiatric, substance abuse, and medical conditions in the longitudinal cohort of Iraq and Afghanistan Veterans; and a series of studies of the gene-environment interplay in the comorbidity of PTSD and eating disorders.

Treatment Research
Several intervention studies are examining more efficient treatment formats for CPT. With funding from the South Texas Research Organizational Network Guiding Studies on Trauma and Resilience (STRONG STAR) Consortium, investigators recently completed studies on the relative effectiveness of CPT delivered in a group versus individual format. The Division is also investigating a variable-length CPT protocol, testing the efficacy of the intervention when treatment end is determined by patient progress. In a related effort, investigators are working to improve adherence to existing PTSD treatments; one current study is exploring Veteran and provider perspectives regarding reasons for dropout from CPT and PE in
order to create an intervention to increase rates of completion.

Other intervention studies include a recently completed examination of the efficacy of contingency management-supported tobacco cessation in Veterans with and without PTSD, and an examination of a physical exercise intervention to elucidate the shared neurobiology of PTSD and chronic pain. Research is underway on a project to test the effectiveness and fit of the Unified Protocol, a transdiagnostic treatment, for trauma-exposed Veterans with co-occurring diagnoses.

Finally, continued analyses are being conducted on two recently completed trials funded by the National Institutes of Health (NIH). The first set of studies involves further examination of therapist fidelity and client variables that contribute to change in PTSD across administrations of CPT. The second trial examines the role of sleep improvement in augmenting recovery from PTSD and depression in a civilian sample of survivors of interpersonal violence.

The Division is also focused on intervention research targeting women who report subthreshold symptoms, including the development of a national network of peer-facilitated psychoeducation and support groups for women Veterans who want to improve their wellbeing. Another project recently published findings on a brief mindfulness-based training to assist Servicemembers who are coping with post-deployment intrusive thoughts.

Gender Differences
The Women’s Health Sciences Division is continuing its research on the Iraq and Afghanistan Veteran cohort, focusing particularly on the experiences of women Veterans. A longitudinal study, supported through a public-private partnership between VA, DoD, academia and industry, was recently initiated to investigate the reintegration experiences and use of VA services by both male and female Veterans. A total of 9,600 Veterans have completed the first assessment, which was administered within three months of military separation. Additional assessments will be conducted at six-month intervals over the next three years. Work with this cohort also includes an examination of gender differences in the effects of deployment stressors and associated mental health conditions on occupational and family quality of life over time.

Investigators are conducting research on the associations between PTSD and suicidal behavior among VA health care users. One cohort study is looking at gender differences in predictors of suicide attempts VHA patients with and without PTSD; the study is focusing on psychiatric comorbidities and gender differences as moderators of these relationships. Using a different large sample of Iraq and Afghanistan Veterans, investigators recently conducted a gender-stratified examination of risk models for suicidal thoughts, and found critical gender differences among this cohort.

Gender differences are being examined in both a community sample and a sample of law enforcement officers recently exposed to community violence. This prospective study seeks to examine gender differences in both positive and negative mental health outcomes, as well as a host of health-related behaviors. Such differences are being considered within the context of socioeconomic status, racial identity, and prior trauma history. Differences in barriers to seeking treatment across study groups are being investigated as part of this effort.

The Division is conducting research on the health of older women Veterans. A new study is investigating the impact on later life health of military and other early life stress exposures and resulting mental health issues, with a focus on PTSD; the study involves an epidemiologic cohort of Vietnam-era women Veterans.

An important project that is just getting underway is the Longitudinal Investigation of Gender, Health and Trauma (LIGHT) study. This is a large national survey of Veterans that will focus on the impact of trauma and community violence on mental, physical, and reproductive health. Planning for this survey took place in FY 2016, and the survey is expected to be launched in 2017.

Military Sexual Trauma and Intimate Partner Violence
Exposure to different forms of interpersonal violence is a key issue of study at the Division. Research related to MST includes a recent qualitative investigation aimed at identifying unique factors associated with sexual trauma that occurs within a military context. Another effort is a mixed-methods investigation of Veterans’ experiences with and preferences for the VHA’s universal MST screening program.

Intimate partner violence (IPV) among female Veterans is a strong focus area. Researchers are examining best practices for IPV identification, assessment, treatment, and the targeting of health services within the VHA context. A new study will refine and evaluate the effectiveness of a patient-centered brief counseling intervention for women who experience intimate partner violence. This study incorporates hybrid methodology that will help to facilitate expansion of the intervention in VA.
Appendix B: Fiscal Year 2016 Funding

### VA Cooperative Studies Program (CSP)

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<thead>
<tr>
<th>Principal Investigator</th>
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<th>Years</th>
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### Other VA Sources

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## Appendix B: Fiscal Year 2016 Funding

### (Other VA Sources Continued)

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<td>The Genetics of Posttraumatic Psychopathology</td>
<td>CSR&amp;D</td>
<td>2015-2017</td>
<td>$97,834</td>
<td>$951,898</td>
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BLR&D Biomedical Laboratory Research & Development Service; CSR&D Clinical Science Research and Development Service; HSR&D Health Services Research and Development Service; ORH Office of Rural Health; QUERI Quality Enhancement Research Initiative; RR&D Rehabilitation Research and Development Service

### National Institutes of Health (NIH)

<table>
<thead>
<tr>
<th>Principal Investigator</th>
<th>Research Title</th>
<th>Funding Source</th>
<th>Years</th>
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<td>Abdallah</td>
<td>Examining The Effect of Ketamine on Glutamate/ Glutamine Cycling</td>
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<td>Anticevic</td>
<td>Classification of Neuropsychiatric Conditions via Connectivity and Machine Learning</td>
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<td>Cloitre</td>
<td>The Implementation of an Evidence-Based PTSD Treatment in Public Sector Settings</td>
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<td>A Life Course Approach to Integrating Trauma and Cognitive Aging: A Cohort of 9/11 Responders</td>
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<td>Role of mTOR and Synaptic Protein Synthesis in the Rapid Antidepressant Actions of NMDA Receptor Blockade</td>
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### Appendix B: Fiscal Year 2016 Funding

(National Institutes of Health (NIH) Continued)

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<td>Synaptic Mechanisms Underlying the Rapid Antidepressant Actions of Scopolamine</td>
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<td>Gene Expression Profiles as Markers of PTSD Risk and Resilience in WTC Responders</td>
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<td>Effectiveness of a Unified Transdiagnostic Treatment in Routine Clinical Care</td>
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<td>Fear Learning and Reconsolidation After Trauma Exposure: A Computational Approach</td>
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<td>Keane</td>
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<td>Translational Center to Develop Gender Sensitive Treatments for Tobacco Smoking</td>
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<td>Mitchell</td>
<td>The Interplay of Genetic and Environmental Factors in the Comorbidity of PTSD</td>
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<td>Morris &amp; Cosgrove</td>
<td>Imaging Sex Differences in Smoking-Induced Dopamine Release via Novel PET Methods</td>
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<td>Pietrzak &amp; Southwick</td>
<td>Biomarkers of Psychological Risk and Resilience in World Trade Center Responders</td>
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<td>New Experimental Medicine Studies: Fast-Fail Trials in Mood and Anxiety Spectrum Disorders (FAST-MAS)</td>
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<td>Rapidly Acting Treatments for Treatment Resistant Depression (RAPID)</td>
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<td>Sloan</td>
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<td>Smith</td>
<td>Health Mechanisms and Outcomes in an Epidemiological Cohort of Vietnam Era Women Veterans</td>
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<td>Family Adaptation to OIF Deployment</td>
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<td>Improving and Sustaining CPT for PTSD in Mental Health Systems</td>
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CDC/NIOSH Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health; NIA National Institute on Aging; NIAAA National Institute on Alcohol Abuse and Alcoholism; NIDA National Institute on Drug Abuse; NIH CTSI National Institutes of Health Clinical and Translational Science Institute; NIMH National Institute of Mental Health
## Department of Defense (DoD)

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<th>Principal Investigator</th>
<th>Research Title</th>
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<td>Keane &amp; Marx</td>
<td>Project VALOR: Trajectories of Change in PTSD in Combat-Exposed Veterans</td>
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<td>Krystal &amp; Abdallah</td>
<td>CAP-Ketamine for Antidepressant-Resistant PTSD: A Translational Neuroscience, Biomarker-Informed Clinical Trial</td>
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<td>Morland</td>
<td>In-Home Exposure Therapy for Veterans with PTSD</td>
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<td>Nock &amp; Marx</td>
<td>New Approaches to the Measurement of Suicide-Related Cognition</td>
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<td>Norman</td>
<td>Trauma Informed Guilt Reduction (TriGR) Intervention</td>
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<td>Peterson &amp; Resick</td>
<td>Clinical Effectiveness Trial of In-Home Cognitive Processing Therapy for Combat-Related PTSD</td>
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<td>Ruzek</td>
<td>PTSD Practitioner Registry</td>
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<td>Ruzek &amp; Rosen</td>
<td>Randomized Controlled Trial of CBT Training for PTSD Providers</td>
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<td>Shipherd</td>
<td>Enhancing Post-Deployment Training: Preventing PTSD by Coping with Intrusive Thoughts</td>
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<td>Sloan</td>
<td>Brief Treatment for PTSD: Enhancing Treatment Engagement and Retention</td>
<td>2015-2018</td>
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<td>Taft</td>
<td>Strength at Home Couples Program to Prevent Military Partner Violence</td>
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<td>White &amp; Mackintosh</td>
<td>Brain Injury and Military Service as Factors for Alzheimer’s Disease and Other Conditions</td>
<td>2016-2019</td>
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<td>Woodward</td>
<td>Can a Canine Companion Modify Cardiac Autonomic Reactivity and Tone in PTSD</td>
<td>2014-2018</td>
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## Other Non-VA Sources

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<td>Abdallah</td>
<td>Glial and Glutamatergic Deficits In Posttraumatic Stress Disorder</td>
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<td>Abdallah</td>
<td>Neuroimaging and Behavioral Examination of Ketamine-Related Cognitive Improvements in MDD</td>
<td>Robert Leet and Clara Guthrie Patterson Trust</td>
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<td>Bonn-Miller &amp; Walser</td>
<td>A Test of the Efficacy of Compassion Cultivation Training for Veterans with PTSD</td>
<td>Mind and Life 1440 Award</td>
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<td>Harpaz-Rotem</td>
<td>Combining Neurobiology and New Learning: Ketamine and Prolonged Exposure: A Potential Rapid Treatment for PTSD</td>
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<td>Discovering a New Class of Antidepressants</td>
<td>Gustavus and Louise Pfeiffer Research Foundation</td>
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### Appendix B: Fiscal Year 2016 Funding

(Other Non-VA Sources Continued)

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<td>Monson &amp; Wiltsey Stirman</td>
<td>Improving and Sustaining Clinician Use of CPT</td>
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<td>An Open-label Long-term Extension Safety Study of Intranasal Esketamine in Treatment-Resistant Depression</td>
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<td>Exploring the Role of Glial Mediated Glutamate Clearance in Stress Sensitivity &amp; Resiliency</td>
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<td>Utility of NMR as a Translatable Biomarker for the Regulation of Glutamate Neurotransmission Behavioral Effects of Compounds that Influence Glutamate Release</td>
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<td>Wolf</td>
<td>The Utility of MMPI-2 RF in Informing VA Pain Clinic Care</td>
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### Pending Research Projects

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<td>Acceptance and Commitment Therapy for Veterans with Cannabis Use</td>
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<td>Sleep-Focused Prevention of Substance Use Disorders among Veterans with PTSD</td>
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<td>Kappa Opioid Receptors, Stress and Gender: Mediation of Depressive Endophenotypes</td>
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Appendix B: Fiscal Year 2016 Funding

(Pending Research Projects Continued)

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<td>Iverson</td>
<td>Recovering from Intimate Partner Violence through Strengths and Empowerment (RISE): Tailoring and Evaluating a Patient-Centered Counseling Intervention for Women Veterans</td>
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<td>Kehle-Forbes</td>
<td>Pilot Test of a Self-Management Program for Completers of Trauma-Focused Therapy</td>
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<td>Neuroimaging Genetics of PTSD</td>
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<td>Mitchell</td>
<td>Bidirectional Associations Among Waist Circumference and Cognitive Functioning: The Impact of Childhood Adversity</td>
<td>NIDDK</td>
<td>2017-2022</td>
<td>$3,870,386</td>
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<td>Morey &amp; Logue (site PI)</td>
<td>Trauma and Genomics Modulate Brain Structure across Common Psychiatric Disorders</td>
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<td>Morisette &amp; Sloan</td>
<td>A Novel Brief PTSD Treatment for Student Veterans: Written Exposure Therapy</td>
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<td>$2,800,000</td>
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<tr>
<td>Nillni</td>
<td>PTSD-Related Neurobiological Mediators of Negative Pregnancy Outcomes</td>
<td>Eunice Kennedy Shriver National Institute of Child and Human Development</td>
<td>2017-2021</td>
<td>$517,642</td>
</tr>
<tr>
<td>Norman</td>
<td>Topiramate and Prolonged Exposure for Alcohol Use Disorder and PTSD</td>
<td>RR&amp;D</td>
<td>2016-2021</td>
<td>$820,000</td>
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<tr>
<td>Pineles</td>
<td>Neurobiological Predictors of SSRI Response in Trauma-Exposed Veterans</td>
<td>CSR&amp;D</td>
<td>2017-2021</td>
<td>$600,000</td>
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<tr>
<td>Pless Kaiser</td>
<td>Improving Psychosocial Functioning in Older Veterans with PTSD</td>
<td>RR&amp;D</td>
<td>2016-2021</td>
<td>$809,149</td>
</tr>
<tr>
<td>Rasmussson</td>
<td>A Clinical Trial of Letrozole for the Treatment of Irritable Aggression in PTSD</td>
<td>NARSAD</td>
<td>2016-2018</td>
<td>$300,000</td>
</tr>
<tr>
<td>Rasmusson (PI), Hayes &amp; Galovski (Co-PIs)</td>
<td>Molecular Basis for Pre-session Exercise Augmentation of Trauma-Focused PTSD Treatment</td>
<td>NIMH</td>
<td>2017-2022</td>
<td>$5,041,365</td>
</tr>
<tr>
<td>Ross &amp; Woodward</td>
<td>Lucid Dreaming in Veterans with PTSD</td>
<td>CSR&amp;D</td>
<td>2017-2020</td>
<td>$538,000</td>
</tr>
<tr>
<td>Scioli-Salter</td>
<td>Neurobiological and Psychological Benefits of Fibromyalgia and PTSD</td>
<td>RR&amp;D</td>
<td>2016-2018</td>
<td>$197,206</td>
</tr>
<tr>
<td>Wachen &amp; Galovski</td>
<td>Massed Cognitive Processing Therapy for Combat-related PTSD</td>
<td>DoD</td>
<td>2017-2020</td>
<td>$3,262,817</td>
</tr>
</tbody>
</table>

BLR&D: Biomedical Laboratory Research & Development Service; CAP: Consortium to Alleviate PTSD; CSR&D: Clinical Science Research and Development Service; DoD: Department of Defense; HSR&D: Health Services Research and Development Service; NARSAD: National Alliance for Research on Schizophrenia and Depression; NIDDK: National Institute of Diabetes and Digestive and Kidney Diseases; NIMH: National Institute of Mental Health; RR&D: Rehabilitation Research and Development Service.
Appendix C: Fiscal Year 2016 Publications


Appendix C: Fiscal Year 2016 Publications


Appendix C: Fiscal Year 2016 Publications


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Appendix C: Fiscal Year 2016 Publications


Appendix C: Fiscal Year 2016 Publications


Appendix C: Fiscal Year 2016 Publications


Appendix D: Fiscal Year 2016 In Press and Advance Online Publications


Appendix D: Fiscal Year 2016 In Press and Advance Online Publications


Appendix D: Fiscal Year 2016 In Press and Advance Online Publications


Appendix D: Fiscal Year 2016 In Press and Advance Online Publications


Appendix D: Fiscal Year 2016 In Press and Advance Online Publications


Appendix D: Fiscal Year 2016 In Press and Advance Online Publications


Appendix E:
Fiscal Year 2016 Scientific Presentations

American Psychological Association – Denver, CO, August 2016

1. Davis, L., Schutte, K., & Tiet, Q. Motivation and the working alliance in veterans with substance use disorders.
3. Galovski, T. E. Gender and recovery from PTSD following community violence in Ferguson. In Z. D. Peterson (Chair), Trauma in context—Community and law enforcement reactions to the events in Ferguson, Missouri.
4. Keane, T. M. Past presidents’ panel: Getting the word out on trauma psychology.
5. Keane, T. M. Discussant. In S. Norman (Chair), Community care for returning combat veterans.
7. Tiet, Q., Leyva, Y. E., Moos, R., & Smith, B. N. Diagnostic accuracy of a revised, Two-Item Alcohol, Smoking and Substance Involvement Screening Test (Ti-ASSIST) for drug use.

Anxiety and Depression Association of America – Philadelphia, PA, April 2016

11. Keane, T. M. Recent advances in the psychological treatment of military related PTSD. In T. M. Keane (Chair), Recent advances in the psychological treatment of military related PTSD.
13. Marx, B. P., Green, J. D., Kearns, J. C., Gradus, J. L., Rosen, R. C., & Keane, T. M. Postdeployment social support as a protective factor for suicide risk among OEF/OIF veterans. In B. P. Marx (Chair), Suicide risk and resiliency in active duty military personnel and returning military veterans.

Association for Behavioral and Cognitive Therapies – Chicago, IL, November 2015

17. Galovski, T. E. Sex differences in reaction to violent protests in Ferguson, Missouri among law enforcement personnel.
20. Healy, E., Chard, K. M., Cogan, C. M., & Ashton, S. A. CPT or CPT-C: Do therapists need to learn one first? In E. L. Birkley (Chair), Moderators of cognitive-behavioral treatments for PTSD: Implications for assessment, intervention and dissemination.
Appendix E: Fiscal Year 2016 Scientific Presentations

(Association for Behavioral and Cognitive Therapies Continued)


International Society for Traumatic Stress Studies – New Orleans, LA, November 2015


33. Beagley, M., Strasshofer, D., Held, P., Peterson, Z., & Galovski, T. E. The relative contributions of perceived social support and morale to the development of posttraumatic stress symptoms in police officers responding to protests in Ferguson, Missouri.


36. Bosch, J., McCaslin, S. E., Neylan, T., Dinh, J., & Weaver, T. The impact of exercise on PTSD symptoms among OEF/OIF/OND veterans.

37. Bovin, M. J., Black, S., Erb, S., Street, A. E., Marx, B. P., Rosen, R., & Keane, T. M. Reports of military sexual trauma among returning veterans: Who are we missing?


44. Galovski, T. E. Integrating CPT for caregivers into a trauma-informed model of care for families experiencing multiple traumas across generations. In K. Chard (Chair), Cognitive Processing Therapy: Expanding the horizons.


46. Galovski, T. E., Peterson, Z., Beagley, M., & Strasshofer, D. Exposure to violence in Ferguson, MO: Understanding experiences and reactions of law enforcement and community members.

47. Glotch, C., & Galovski, T. E. I had homework? An investigation of homework compliance and outcomes during CPT. In C.J. Fleming (Chair), The role of homework completion in evidence-based treatments for PTSD: Results across three studies of Cognitive Processing Therapy.


49. Griffin, M., & Galovski, T. E. Psychophysiological alterations following Cognitive Processing Therapy with hypnosis. In C. Chou (Chair), Psychological and psychophysiological features of traumatic memory processing.


Appendix E: Fiscal Year 2016 Scientific Presentations

(Continued)


53. Haller, M., Angkaw, A. C., Hendricks, B. A., & Norman, S. B. Does reintegration stress contribute to suicidal ideation among returning veterans seeking PTSD treatment?

54. Haller, M., Crocker, L. D., Norman, S. B., & Angkaw, A. C. Shame versus guilt as mediators of the relation between PTSD symptoms and verbal aggression among returning veterans.

55. Hamblen, J. L., Bippart, V., Bunnell, B., Davidson, T., & Ruggiero, K. AboutFace: A qualitative study of an approach to reduce stigma and improve readiness to seek services among veterans.


57. Hayes, J. P. COMT polymorphism moderates the association between PTSD symptom severity and hippocampal volume.


60. Herbst, E., Leach, B., O’Connor, A., Armstrong, K., Jerksy, B., & McCaslin, S. E. VHA services on the college campus: Acceptability and impact of the student Veteran’s Health Program.


66. Krystal, J. H. Stress resilience is more than dampening of arousal.

67. Kuhn, E., Eftekhari, A., Hoffman, J. E., Owen, J. E., Crowley, J. J., Rosen, C., & Ruzek, J. Using mobile apps to support the provision of evidence-based psychotherapy for PTSD.


70. Lunney, C., & Schnurr, P. P. An exploration of racial and ethnic differences in symptom presentation and treatment outcome in female veterans with PTSD.


72. Mackintosh, M. A., Cash, R., Greene, C. J., & Morland, L. A. Advances and innovation in treating anger and aggression in trauma exposed populations. In M. A. Mackintosh (Chair), Affective processes/interventions track symposium.


74. Mackintosh, M. A., Willis, E., & Morland, L. A. Anger reductions in response to evidence based psychotherapy for PTSD.

75. McCaslin, S. E., Cloitre, M., Neylan, T., Gavert, D., & Marmar, C. Towards thriving: Identifying predictors of high functioning in the context of high distress.

76. McCaslin, S. E., O’Connor, A., Herbst, E., Armstrong, K., & Leach, B. Student veterans with PTSD symptoms: Perceived barriers and support needs.


Appendix E: Fiscal Year 2016 Scientific Presentations (International Society for Traumatic Stress Studies Continued)


86. Mota, N., Sippel, L. M., & Connolly, K. Examining resilience as a predictor of treatment outcome in a sample of veterans undergoing an outpatient day program for posttraumatic stress disorder and substance use disorders.


90. Pless Kaiser, A., Cook, J., & Harpaz-Rotem, I. Mental health service utilization among a national sample of older veterans with PTSD. In B. N. Smith (Chair), PTSD and aging: Examining treatment outcomes, psychosocial health correlates, and implications for mental health treatment of PTSD for older adults.


92. Possemato, K., Kuhn, E., & Johnson, E. Clinician-supported PTSD Coach: Pilot results on changes in PTSD symptoms and treatment seeking. In K. Possemato (Chair), Using technology at multiple levels of PTSD Treatment.


96. Schnurr, P. P. Getting beyond the bedside—but not forgetting the bench.


103. Spadoni-Townsend, A., Norman, S. B., & Simmons, A. N. Neural correlates of emotion identification predict treatment response in PTSD. In A. Simmons (Chair), Application of machine learning to diagnostic and prognostic brain imaging in anxious populations.

104. Spoopt, M., Clothier, B., & Nelson, D. Treatment-related beliefs and preferences associated with race and ethnicity among veterans with PTSD.


109. Willis, E., Mackintosh, M. A., & Morland, L. A. The impact of neuropsychological functioning and depressive symptoms on Cognitive Processing Therapy outcomes in an ethnically diverse sample of civilians and veterans with PTSD.

Appendix E: Fiscal Year 2016 Scientific Presentations

(International Society for Traumatic Stress Studies Continued)


112. Woodward, S. H., Schaefer, M., & Kaloupek, D. G. FreeSurfer-derived estimate of cranial volume is smaller in chronic severe PTSD.


American College of Neuropsychopharmacology - Hollywood, FL, December 2015


117. Cosgrove, K. PET imaging of TSPO expression in alcohol dependent subjects during acute abstinence: Comparison with healthy control subjects.

118. Duman, R. REDD1/mTORC1/S6K1 signaling in the pathophysiology and treatment of depression.

International Family Violence and Child Victimization Research Conference - Portsmouth, NH, July 2016


Collaborative Perspectives on Addiction – San Diego, CA, March 2016


129. Haller, M., Bogner, R., Davis, B., Colvonen, P., Trim, R., & Norman, S. B. Exploring pre-treatment differences between residential and outpatient programs for veterans with alcohol use disorders and comorbid combat-related PTSD.

VA and Military


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Appendix E: Fiscal Year 2016 Scientific Presentations

Other


Appendix E: Fiscal Year 2016 Scientific Presentations

(Other Continued)


165. Gelernter, J. (2016, February). Genetics of substance dependence: What we know and how we know it. Chulalongkorn Faculty of Medicine, Bangkok, Thailand; Yale-Chula Drug Dependence Through the Lifespan (DDTLS) Training Program Course, Bangkok, Thailand.


Appendix E: Fiscal Year 2016 Scientific Presentations

(Other Continued)


201. Petrikis, I. (2015, November). Post traumatic stress disorder (PTSD) & comorbid alcohol use disorders (AUD). Grand Rounds, University of Connecticut School of Medicine, Department of Psychiatry, Farmington, CT.


Appendix E: Fiscal Year 2016 Scientific Presentations

(Other Continued)


Appendix F:
Fiscal Year 2016 Educational Presentations

Department of Veterans Affairs


15. Taft, C. T. (2015-2016). Strength at home: Programs for veterans. Invited trainings at: Atlanta VA Medical Center, Atlanta, GA; Providence VA Medical Center, Providence, RI; Durham VA Medical Center, Durham, NC; Philadelphia VA Medical Center, Philadelphia, PA; Salem VA Medical Center, Salem, VA; VA Portland Healthcare System, Portland, OR; Kansas City VA Medical Center, Kansas City, MO; VA Maryland Healthcare System, Baltimore, MD; Cincinnati VA Medical Center, Cincinnati, OH.

International Society for Traumatic Stresses Studies – New Orleans, LA, November 2015

16. Gutner, C. A. How to submit a graduate or early career award: What you need to know about NIH and VA grants.

17. Haller, M., Cummins, K., Xu, X., Cui, R., Norman, S. B., & Tate, S. Integrated cognitive behavioral therapy versus Cognitive Processing Therapy for adults with depression, substance use disorder, and trauma: PTSD and depression outcomes.


Appendix F: Fiscal Year 2016 Educational Presentations

Other


41. Schnurr, P. P. (2016, February). Update on psychotherapy for PTSD. University of Texas Health Psychiatry Update, Houston, TX.


55. Wolf, E. J. (2016, April). PTSD-related accelerated aging in DNA methylation as manifested in neurocognitive and health decline. Trauma Genomics Group Bi-monthly at Massachusetts General Hospital, Boston, MA.

Appendix G:  
Fiscal Year 2016 Editorial Board Activities

*Addiction*  
Bonn-Miller

*Addictive Behaviors*  
Bonn-Miller

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

*American Journal of Medical Genetics, Part B*  
Gelernter

*Asian Biomedicine (Research Reviews and News)*  
Gelernter

*Behavior Therapy*  
Keane (Guest Editor); Sloan (Editor-Elect); Wolf

*Behaviour Research and Therapy*  
Ruzek; Sloan

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

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

*Cannabis and Cannabinoid Research*  
Bonn-Miller

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

*Clinical Psychology Review*  
Pineles

*Cognitive and Behavioral Practice*  
Shipherd

*Community Mental Health Journal*  
Harpaz-Rotem

*Critical Reviews in Neurobiology*  
Duman (Editorial Advisory Board)

*European Journal of Psychotraumatology*  
Cloitre (Associate Editor)

*Frontiers in Neurogenomics*  
Miller (Associate Editor); Wolf (Review Editor)

*International Journal of Emergency Mental Health*  
Keane

*Journal of Abnormal Psychology*  
Miller; Wolf

*Journal of Addiction Medicine*  
Bonn-Miller

*Journal of Addiction*  
Tiet

*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 Neuroscience*  
Levy (Associate Editor)

*Journal of Psychoactive Drugs*  
Babson, Bonn-Miller
Appendix G: Fiscal Year 2016 Editorial Activities

Journal of Trauma and Dissociation
Carlson; Marx

Journal of Traumatic Stress
Galovski (Associate Editor); Miller; Morland; Rosen; Wolf

Journal of Traumatic Stress Disorders and Treatment
Gradus

Molecular Pharmacology
Duman

Neuropsychology
Hayes (Consulting Editor)

Neuropsychopharmacology
Duman; Gelernter; Sanacora (Associate Editor)

Partner Abuse
Taft

Psychiatric Genetics
Gelernter

Psychological Assessment
Vasterling

Psychology Injury and Law
Pietrzak

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

Psychology of Addictive Behaviors
Bonn-Miller (Consulting Editor)

Psychosomatic Medicine
Sloan

Trauma, Violence, and Abuse
Keane