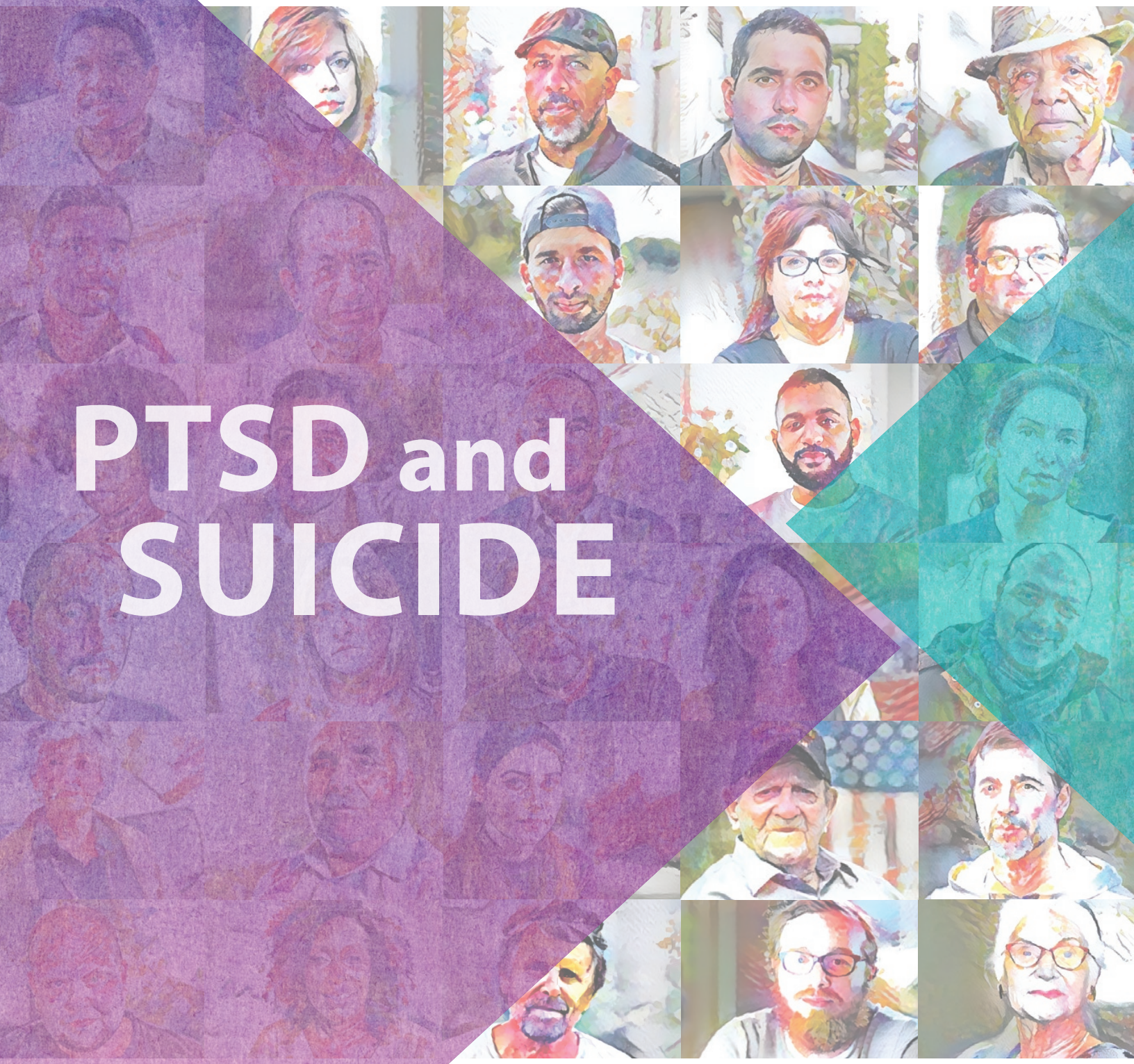
National Center for PTSD

Fiscal Year 2018 Annual Report



PTSD and SUICIDE

National Center for PTSD
POSTTRAUMATIC STRESS DISORDER

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A version of the National Center for PTSD Fiscal Year 2018 Annual Report with all appendices, as well as each individual appendix, is available as a pdf document at https://www.ptsd.va.gov/about/work/docs/annual_reports/2018/NCPTSD_2018_Annual_Report.pdf

Acronyms Used in the Text

Army STARRS
Army Study to Assess Risk and Resilience in Servicemembers

CAP
Consortium to Alleviate PTSD

CAPS-5
Clinician-Administered PTSD Scale for *DSM-5*

CBT-I
Cognitive-Behavioral Therapy for Insomnia

CE
Continuing Education

COE
Center of Excellence

CPT
Cognitive Processing Therapy

CRAFT
Community Reinforcement and Family Training

CSP
Cooperative Studies Program

DoD
Department of Defense

DSM-5
Diagnostic and Statistical Manual of Mental Disorders--Fifth Edition

EBP
Evidence-Based Psychotherapy

EBT
Evidence-Based Treatment

ENIGMA
Enhancing Neuroimaging Genetics through Meta-Analysis

FY
Fiscal Year

ICD-11
International Classification of Diseases 11th Revision

LEC-5
Life Events Checklist for *DSM-5*

LIGHT
Longitudinal Investigation of Gender, Health, and Trauma

mGluR5
Metabotropic Glutamate Receptor Type 5

MVP
Million Veteran Program

MST
Military Sexual Trauma

NCPS
National Center for Patient Safety

NEPEC
Northeast Program Evaluation Center

NHRVS
National Health and Resilience in Veterans Study

OMHSP
Office of Mental Health and Suicide Prevention

PBI Network
Practice-Based Implementation Network

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

PCL-5
PTSD Checklist for *DSM-5*

PE
Prolonged Exposure

PGC
Psychiatric Genomics Consortium

PILOTS
Published International Literature on Traumatic Stress

PTSD
Posttraumatic Stress Disorder

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

STAIR
Skills Training in Affective and Interpersonal Regulation

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

TRACTS
Translational Research Center for Traumatic Brain Injury and Stress Disorders

TRAIN
Training Finder Real-time Affiliate Integrated Network

TVMI
The Veterans Metric Initiative

UP
Unified Protocol

VA
Department of Veterans Affairs

Project VALOR
Veterans After-Discharge Longitudinal Registry

VHA
Veterans Health Administration

VISN
Veterans Integrated Services Network

WET
Written Exposure Therapy

WoVeN
Women Veterans Network

From the Executive Director


Paula P. Schnurr, PhD

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

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

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

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

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

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

Paula P. Schnurr, PhD
Executive Director

Understanding the Relationship Between PTSD and Suicide: Challenges and Opportunities

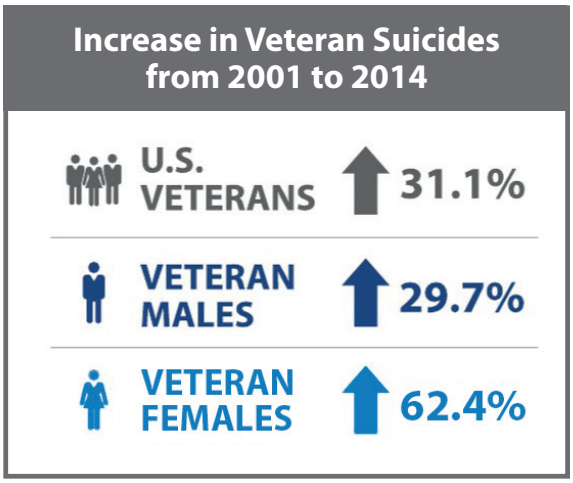
Suicide is the tenth leading cause of death in the United States, and one of the few causes for which the rate is increasing over time. Critically, the rate of suicide in Veterans is higher than in the civilian population and has increased over the past two decades at a much faster pace; this is especially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

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

The Relationship Between PTSD and Suicide

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

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



PTSD and depression co-occur, their effect on suicide is much greater than what could be explained by either condition independently.

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

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

"There has been a lot of progress in understanding the epidemiology of suicide. We have a pretty good handle on the demographics—that is, what demographic groups are at higher or lower risk."

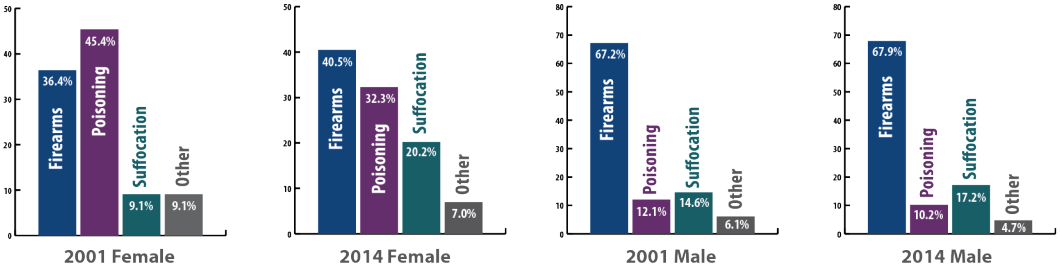
-Dr. Rani Hoff

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

Rani Hoff, MPH, PhD
Director, Evaluation Division

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

Veteran suicide deaths by mechanism and gender in 2001 and 2014.



Source: U.S. Department of Veterans Affairs, Office of Mental Health and Suicide Prevention. (2018). *National strategy for preventing Veteran suicide, 2018-2028.* Retrieved from https://www.mentalhealth.va.gov/suicide_prevention/docs/Office-of-Mental-Health-and-Suicide-Prevention-National-Strategy-for-Preventing-Veterans-Suicide.pdf

Amy Street, PhD, Deputy Director, Women's Health Sciences Division

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

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

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

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

Jaimie Gradus, DSc, MPH, Investigator, Women's Health Sciences Division

Strategies to Predict and Prevent Suicide

VA has taken many steps over the years to better understand suicide and implement programs aimed at suicide prevention. The REACH-VET program (i.e., Recovery Engagement and Coordination for Health – Veterans Enhanced Treatment) seeks to identify at-risk Veterans and connect them with the specialized care and support they need. The Veterans Crisis Line is available 24 hours a day through phone and text to connect Servicemembers and Veterans in crisis to trained responders and other support.

Brian Marx, PhD, Investigator and incoming Deputy Director and Alexandra Zax, BA, Research Assistant, Behavioral Science Division

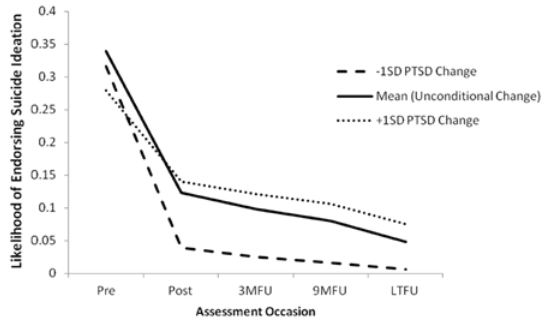
Dr. Brian Marx of the Behavioral Science Division has been working to identify risk factors for suicide through Project VALOR (Veterans After-Discharge Longitudinal Registry), a longitudinal study that follows Veterans over time and looks at factors that influence their health and well-being, perhaps before they are at acute risk of suicide. Knowledge about risk factors can be translated into prevention strategies that directly target these factors at the most opportune time. According to Dr. Marx, "Once a person has been identified as high-risk, there are a number of interventions that can be tried."

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

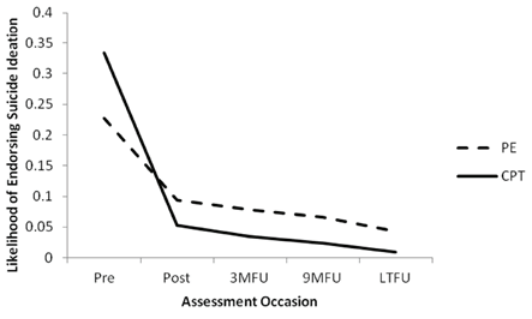
According to Dr. Marx, however, safety plans are not always as effective as they could be. "There is a need to ensure that clinicians are sufficiently trained on how to create a safety plan, and that they have the time to do it. We have found that in many cases not everyone who should have had a plan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

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

Examining the Effect of PTSD Treatments on Suicidal Ideation



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



Change in the likelihood of endorsing suicidal ideation during the study as a function of treatment condition. Declines in suicidal ideation were evidenced in both the CPT and PE groups, but this effect was larger for people receiving CPT.

Gradus, J. L., Suvak, M. K., Wisco, B. E., Marx, B. P., & Resick, P. A. (2013). Treatment of posttraumatic stress disorder reduces suicidal ideation. *Depression and Anxiety, 30*, 1046-1053. Doi: 10.1002/da.22117

PE do in fact reduce suicidal ideation, suggesting that trauma-focused psychotherapy may be an appropriate intervention in these cases.

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

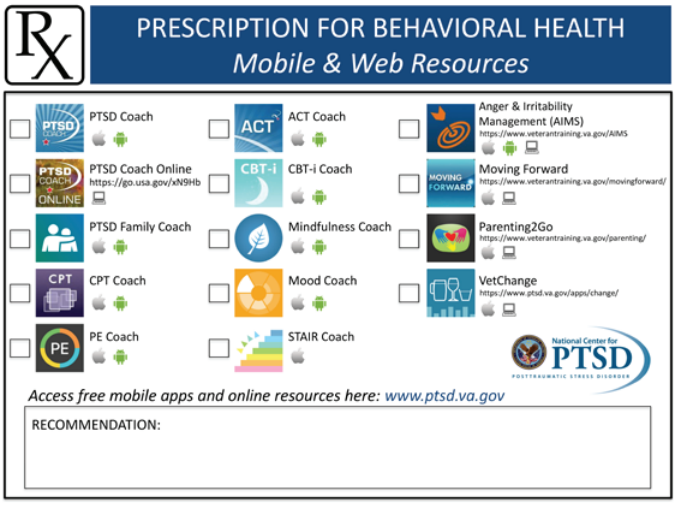
According to Dr. Hoff, research on suicide prevention is moving into the public health arena, reaching Veterans who don't connect with the VA health system, family members, general health care providers, and others in the community. "The strategies that have the hope of greatest impact are not necessarily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

"Our goal needs to encompass the bigger picture: we don't just want to prevent suicides, but to ensure people have lives worth living."

-Dr. Amy Street

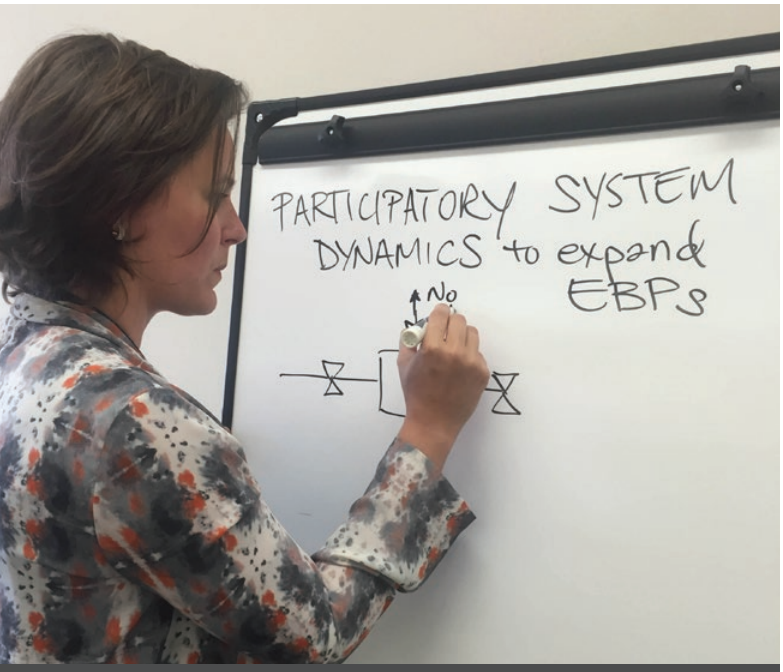
Beyond suicide prevention efforts, there is interest in developing more direct interventions for individuals at high risk for suicide. One promising avenue for reducing acute suicidality is the substance ketamine. Investigators at the National Center's Clinical Neurosciences Division are among those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

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



Behavioral health 'prescription pad' developed by NCPTSD's 'Tech into Care Initiative' to support providers' integration of apps and online programs that support EBP homework completion, psychoeducation, and coping skills practice into care.

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



Lindsey Zimmerman, PhD, Investigator, Dissemination and Training Division

Improving Systems to Identify and Manage Suicidality

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

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

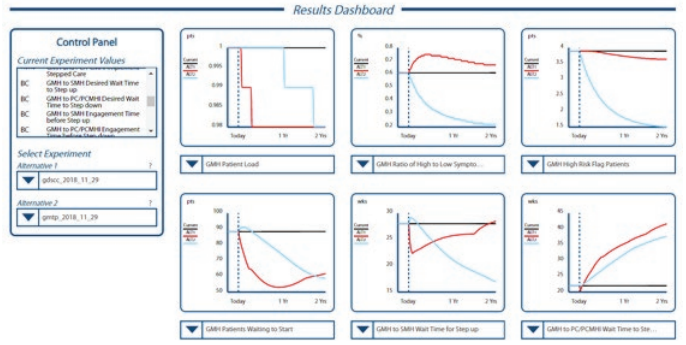
Modeling to Learn

Experiments that empower effective action

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

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

To address suicide prevention specifically, Dr. Zimmerman and her team released a new module for Modeling to Learn in 2018 that helps teams examine the effects of using standardized symptom scales, or measurement-



The Modeling to Learn Results Dashboard compares three quality improvement experiments on the VA mental health continuum of care, including the impact on patients at high risk for suicide.

Kelly Maieritsch, PhD and Nancy Bernardy, PhD, Co-Directors of the PTSD Mentoring Program in FY 2018

based care, to more efficiently identify when Veterans are improving or getting worse. Clinicians can step some patients up to higher levels of care when necessary; or they can move patients who are doing better to lower levels of care, thereby freeing providers' time to accommodate new patients.

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

Looking to the Future

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

- Establish a clearer understanding of the relationship between PTSD and suicide, both directly and in terms of how PTSD relates to other risk factors. The ability to predict suicidality with greater certainty will lead to more successful prevention.
- Further explore whether the treatments and technologies that are effective for PTSD can also reduce suicidality. The National Center has significant experience with evidence-based treatments (EBTs) for PTSD, and there is evidence that these treatments reduce suicidal ideation, but better data are needed to determine whether these treatments reduce risk for all suicidal behaviors.
- Support the initiatives undertaken by VA nationally to provide seamless, proactive mental health support, work closely with public health agencies, and develop comprehensive data sources.

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

The connection between researchers and clinicians that is fundamental to the National Center's structure gives investigators a unique ability to incorporate lessons from the field into their research.

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

Expanding Understanding of PTSD: Major Research Initiatives in FY 2018

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

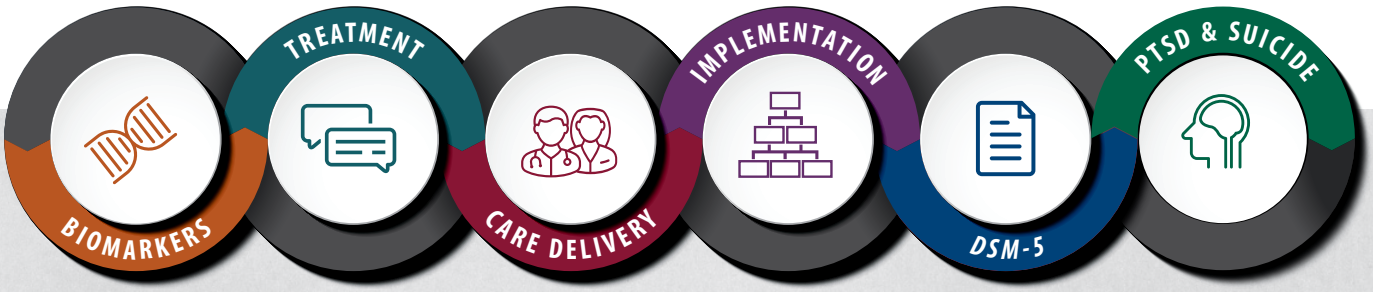
The National Center continues to support cutting-edge clinical trials and biological studies via the CAP, a seven-year, $42 million award to the National Center and the South Texas Research Organizational Network Guiding Studies on Trauma and Resilience (STRONG STAR) Consortium at the University of Texas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

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

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

Biomarkers

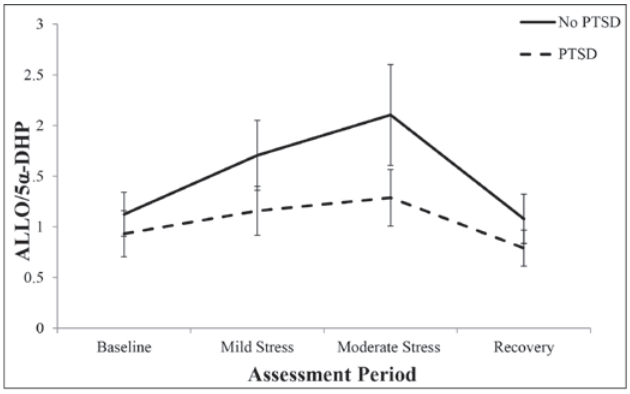
The National Center is dedicated to research aimed at identifying measurable biological factors that inform



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

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

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

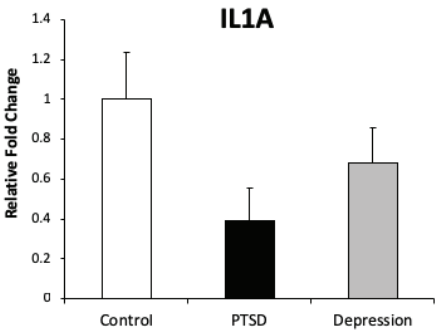


Allopregnanolone and pregnanolone (ALLO) are neuroactive steroids that positively and potently modulate inhibitory GABAa receptors in the brain, resulting in anti-anxiety and other behavioral effects. This figure shows that the ratio of ALLO to its precursor, 5α-DHP, has a blunted response to stress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

Pineles, S. L., Nillni, Y. I., Pinna, G., Irvine, J., Webb, A., Hall, K. A., ... & Rasmusson, A. M. (2018). PTSD in women is associated with a block in conversion of progesterone to the GABAergic neurosteroids allopregnanolone and pregnanolone measured in plasma. *Psychoneuroendocrinology, 93*, 133-141. Doi: 10.1016/j.psyneuen.2018.04.024

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

A



B

IL1A

Overall Model	β	SE	p*
Age	.006	.015	.701
Sex	-.007	.457	.988
Race	-.709	.359	.052
RIN	-.627	.170	**<.001**
PTSD	1.45	.420	**.004[a]**
Depression	.985	.399	
Pairwise Comparisons	**β**	**SE**	**p**
PTSD vs. Control	1.45	.420	**.0006**
Depression vs. Control	.985	.399	**.014**
PTSD vs. Depression	.466	.393	.235

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

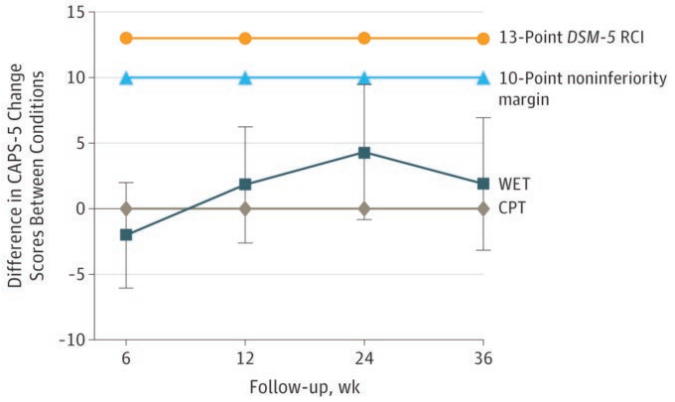
Morrison, F. G., Miller, M. W., Wolf, E. J., Logue, M. W., Maniates, H., Kwasnik, D., ... & Aytan, N. (2019). Reduced interleukin 1A gene expression in the dorsolateral prefrontal cortex of individuals with PTSD and depression. N*euroscience Letters, 692*, 204-209. Doi: 10.1016/j.neulet.2018.10.027

Treatment Engagement, Efficiency, and Effectiveness

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

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

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



Noninferiority margins and 95% confidence intervals for Clinician-Administered PTSD Scale for DSM-5 (CAPS-5) scores. The vertical axis represents differences between the CPT and WET conditions in CAPS-5 total score changes; negative values indicate greater improvement in the WET condition. RCI = reliable change index. (Figure 2 in article.)

Sloan, D. M., Marx, B. P., Lee, D. J., & Resick, P. A. (2018). A brief exposure-based treatment vs cognitive processing therapy for posttraumatic stress disorder: A randomized noninferiority clinical trial. *JAMA Psychiatry, 75*, 233-239. doi:10.1001/jamapsychiatry.2017.4249

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

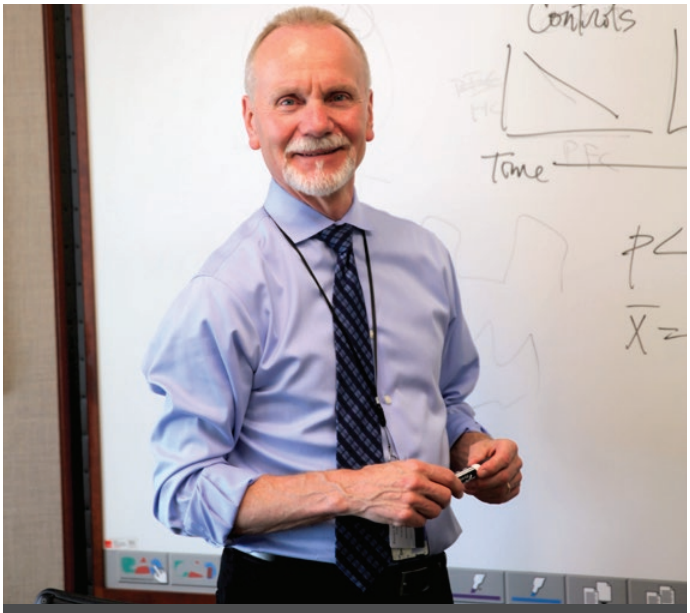
A prime example of an efficient treatment recently developed by National Center investigators is Written Exposure Therapy, a five-session exposure-based treatment for PTSD.

Care Delivery, Models of Care, and System Factors

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

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

Several ongoing studies are assessing the benefits of web-based technologies and mobile apps to increase Veterans' access to mental health care and to enhance outcomes. Specific examples include a web version of PE (Web-PE) delivered to military personnel and Veterans. Researchers



Danny Kaloupek, PhD, Deputy Director at Behavioral Science Division through October, 2018

are also comparing the effectiveness of PTSD Coach, a mobile app designed to help individuals with PTSD learn about and self-manage their symptoms, with traditional treatment for reducing PTSD symptoms in Veterans utilizing primary care services.

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

Modeling to Learn facilitated simulation-based learning for improving team decision-making.

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

Implementation

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

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

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

DSM-5

The *DSM-5* is an established classification and diagnostic tool that specifies the diagnostic criteria for all currently recognized psychological disorders. During FY 2018, the National Center continued to update PTSD assessments for the *DSM-5* and explore the utility of the *DSM-5* PTSD criteria.

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

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

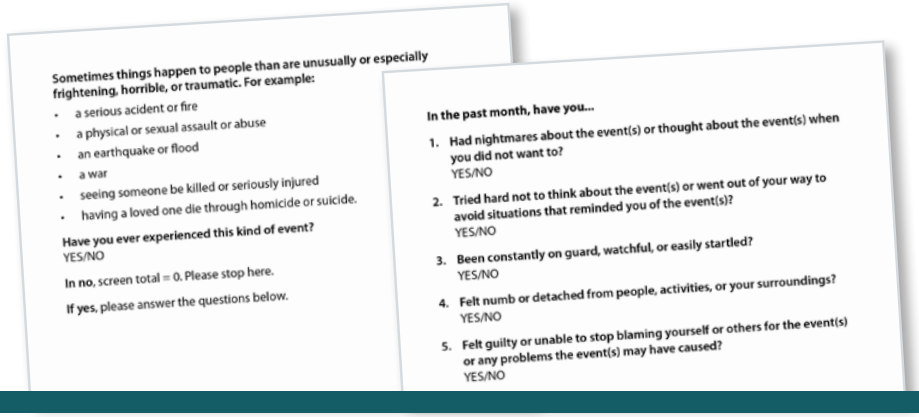
PTSD and Suicide

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

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

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

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



Sometimes things happen to people than are unusually or especially frightening, horrible, or traumatic. For example:

- a serious acident or fire
- a physical or sexual assault or abuse
- an earthquake or flood
- a war
- seeing someone be killed or seriously injured
- having a loved one die through homicide or suicide.

Have you ever experienced this kind of event?
YES/NO

In no, screen total = 0. Please stop here.

If yes, please answer the questions below.

In the past month, have you...

1. Had nightmares about the event(s) or thought about the event(s) when you did not want to?
YES/NO
2. Tried hard not to think about the event(s) or went out of your way to avoid situations that reminded you of the event(s)?
YES/NO
3. Been constantly on guard, watchful, or easily startled?
YES/NO
4. Felt numb or detached from people, activities, or your surroundings?
YES/NO
5. Felt guilty or unable to stop blaming yourself or others for the event(s) or any problems the event(s) may have caused?
YES/NO

Primary Care Screen for PTSD for *DSM-5* (PC-PTSD-5)

Prins, A., Bovin, M. J., Kimerling, R., Kaloupek, D. G., Marx, B. P., Pless Kaiser, A., & Schnurr, P. P. (2015). *The Primary Care PTSD Screen for DSM-5 (PC-PTSD-5)*. [Assessment instrument].

Honors and Awards Received by National Center Staff in FY 2018

Teddy Akiki, MD
Clinical Neurosciences Division

New Investigator Award, American Society of Clinical Psychopharmacology

New Investigator Award, International Society for CNS Clinical Trials and Methodology

Team Award including: Katherine Juhasz, MS; Shannon McCaslin, PhD; Jason Owen, PhD; Jeremy Tevis, BFA
Dissemination and Training Division
Executive Division

Audience Choice Award at the VISN 1 Improvement + Innovation Summit for Cards for Connection

Terry Keane, PhD
Behavioral Science Division

Presidential Award for Outstanding Contributions to the Field of Trauma Psychology, American Psychological Association

Rachel Kimerling, PhD
Dissemination and Training Division

Division 56 Poster Award, American Psychological Association

Andrea Neitzer, MS, CCRC
Dissemination and Training Division

Poster Competition Award for "Targeted Strategies to Accelerate Evidence-Based Psychotherapy Implementation in Military Settings" (PIs Rosen & McLean), Traumatic Brain Injury Research Forum

Suzanne Pineles, PhD
Women's Health Sciences Division

Nga B. Pham Memorial Award for Excellence in Clinical Psychology Training, VA Boston Healthcare System Psychology Service

Ann Rasmusson, PhD
Women's Health Sciences Division

Henry L. Bolley Academic Achievement Award, North Dakota State University

Jillian Shipherd, PhD
Women's Health Sciences Division

Gay and Lesbian Medical Association Achievement Award: Health Professionals Advancing LGBT Equality

Quyen Tiet, PhD
Dissemination and Training Division

American Psychological Association Division 12 Fellow

Shannon Wiltsey Stirman, PhD
Dissemination and Training Division

Mid-Career Innovator Award, Association for Behavioral and Cognitive Therapies

Stanford Department of Psychiatry and Behavioral Sciences Chairman's Polymath Award

Fellowships and Travel Awards

Filomene Morrison, PhD
Behavioral Science Division

Travel Award, Society for Biological Psychiatry

Alies Muskin Career Development Leadership Program, Anxiety and Depression Association of America

Lynnette Averill, PhD
Clinical Neurosciences Division

Alies Muskin Career Development Leadership Program, Anxiety and Depression Association of America

Lauren Sippel, PhD
Executive Division

Alies Muskin Career Development Leadership Program, Anxiety and Depression Association of America

Johanna Thompson-Hollands, PhD
Behavioral Science Division

Alies Muskin Career Development Leadership Program, Anxiety and Depression Association of America

Promoting PTSD Education: Training, Dissemination, and Communication

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

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

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

PTSD Awareness

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

Understanding PTSD: A Guide for Family and Friends is available in English and Spanish.

The guide also emphasizes the need for family and friends to take care of their own mental health needs, and to this end it draws on stories included in AboutFace, the online gallery of videos featuring Veterans, family members, and clinicians talking about PTSD and the value of treatment. The stories shed light on the challenges faced by the Veterans' loved ones, while also highlighting their strengths and the strategies they use to promote communication and healing. AboutFace has recently been expanded to include longer videos called PTSD case studies. These features weave the voices of family members and clinicians into Veterans' accounts of their journeys through PTSD treatment.

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

While many of the National Center's resources are released only after months of planning, every year also includes some efforts requiring a more rapid response. During FY 2018, the National Center responded to several devastating crises faced by the country, all within a few months: wildfires in California; hurricanes in Puerto Rico, Florida, and Texas; and a mass shooting in Las Vegas. The National Center quickly crafted online articles to help survivors and clinicians understand the psychological consequences of these events and how to address them.

Support for Providers in the Field

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

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

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

The VA PTSD Mentoring Program, launched in 2008, promotes best practices in the clinical and administrative components of specialty care. The program is a network of PTSD program directors who collaborate at both the regional Veterans Integrated Services Network (VISN) and national level. This year, a face-to-face meeting of all clinic directors took place, focused on increasing the reach of evidence-based practices and improving strategies to recognize risks and coordinate suicide prevention care. The Mentoring Program led a process improvement project with the Northeast Program Evaluation Center (NEPEC) to increase data collection and validation efforts for mandatory program reporting. The program also provided direct support to PTSD clinics through site visits and other facilitation strategies.

Sonya Norman, PhD, Director, PTSD Consultation Program

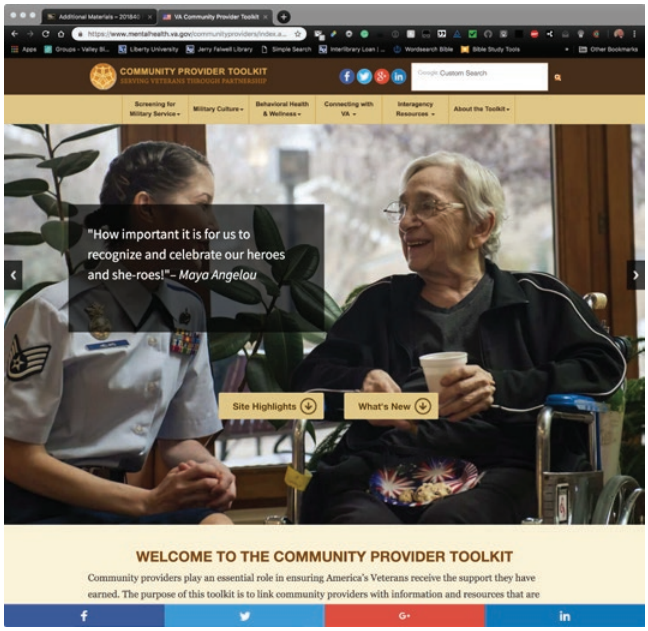
The Executive Division, with support from the VA Office of Rural Health, continued an educational outreach program in VISN 1 that uses academic detailing and facilitation to improve the treatment of rural Veterans. The program's overarching goal is to ensure that Veterans with PTSD who live in rural areas not convenient to a specialized VA facility can receive evidence-based PTSD treatment. With contributions from experts throughout VA, the program developed an online toolkit to help providers in rural clinics understand the nature of effective PTSD care in their communities. The toolkit will be available in FY 2019. On the patient side, the program is using a direct-to-consumer outreach effort to encourage Veterans to play an active role in their own PTSD care.

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

The Practice-Based Implementation Network collaborates with the National Center to test new approaches to implementation.

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

VA's Community Provider Toolkit strengthens partnerships between VA and clinicians in local communities by providing key information and resources that support culturally competent and evidence-informed clinical



The Community Provider Toolkit has information and resources to support evidence-informed clinical practice.

practice. The online toolkit has been visited over 200,000 times since it was developed in April 2013. During FY 2018, it was enhanced by the addition of a new section focusing on rural Native American Veterans, developed in partnership with the Office of Rural Health. Based on user feedback, the toolkit is currently being redesigned with enhancements focused on the Military Screening and Culture and Crisis Management (including Suicide Prevention) sections.

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

Self-Help and Treatment Companion Resources

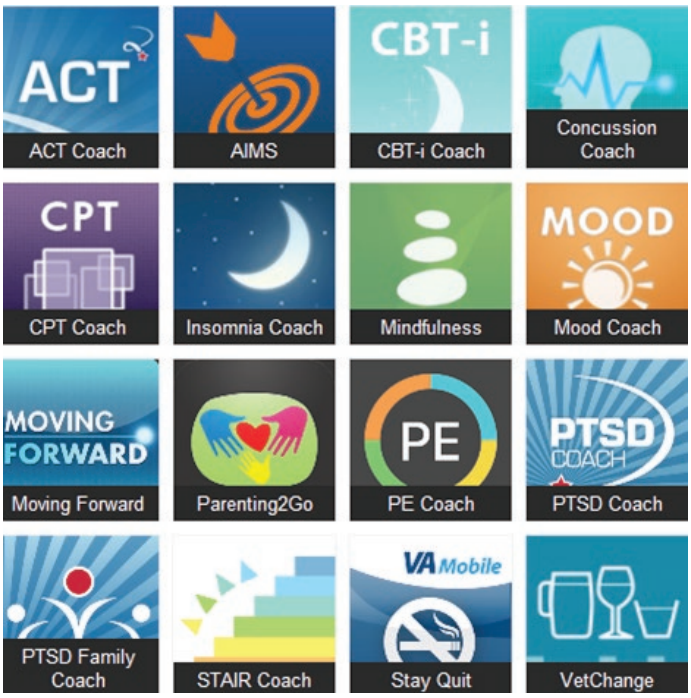
The National Center is undertaking an ambitious effort to enhance VetChange, a website for Veterans who are concerned about their drinking and PTSD symptoms.

AWARE

Aware is a new mobile app that allows users to track their mood.

Behavioral Science Division investigators, along with colleagues at VA Boston Healthcare System and Boston University, created a provider-facilitated version of the program. The reworked VetChange will allow providers to assign specific modules to their patients and track their progress toward abstinence or drinking reduction goals. Initially, this version of VetChange will be pilot tested as part of a research project, with the eventual aim of deploying it across the VA system.

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



Mobile apps developed by the National Center for PTSD.

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

Two CRAFT courses are now available.

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

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

Amy Street, PhD, Co-Director of the Women Veterans Network (WoVeN).

are intended to build understanding and help family members encourage their loved one to enter treatment.

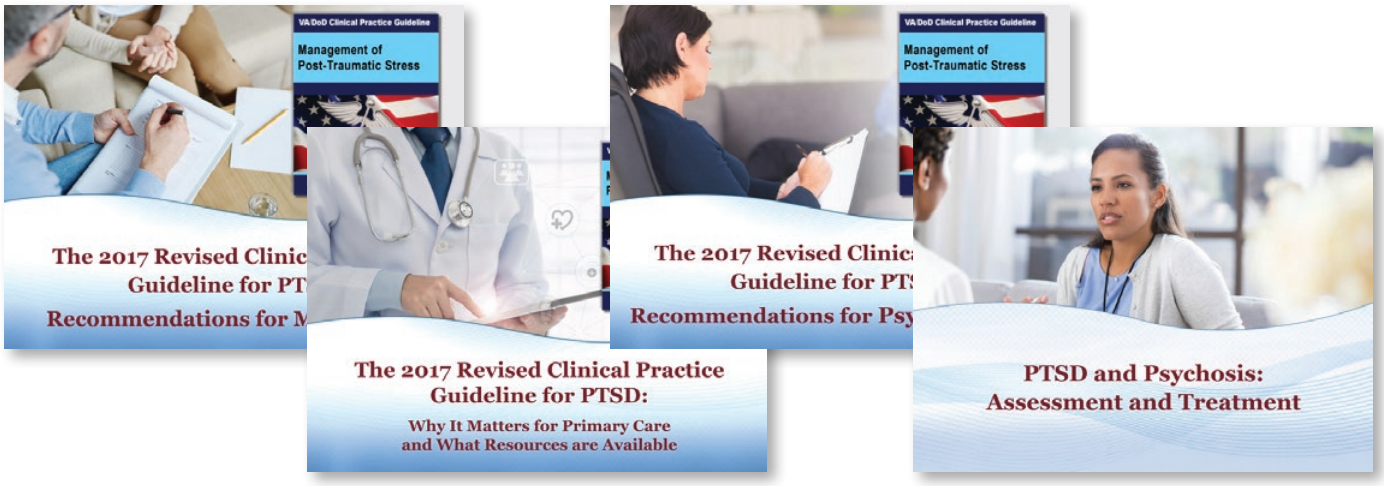
Investigators at the Women's Health Sciences Division continue to expand the reach of WoVeN: The Women Veterans Network, a network that fosters personal connections, improves well-being, and provides information to support women's readjustment. This year, WoVeN held a retreat that trained an additional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

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

Educational Resources for Professionals

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

In September 2018, the Women's Health Sciences Division hosted a summit entitled Women Veterans, Traumatic Stress and Post-Military Health: Building Partnerships for Innovation. Researchers, clinicians, policy makers, funders, Veterans, and other stakeholders came together to engage in a series of conversations. Key goals of the summit were



Four new PTSD 101 courses are now available.

Panel presentation at the Women's Health Science Division's summit focused on women Veterans.

to showcase innovative women Veterans' health research and to foster collaborations in the service of enriching the care of women Veterans.

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

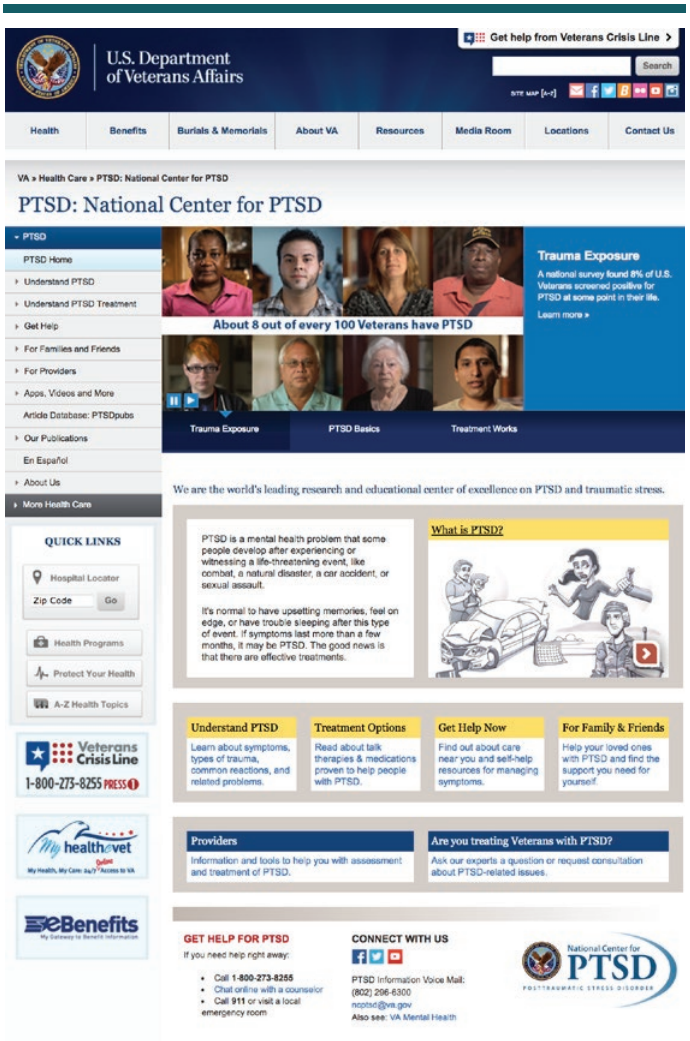
Online Communication Resources

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

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

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

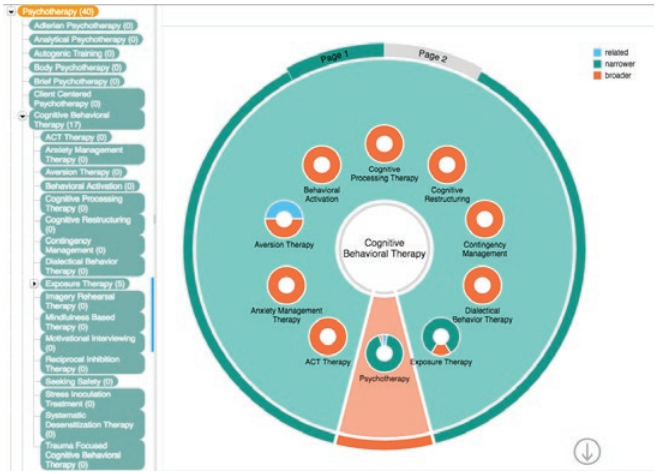
Since 1989, the PILOTS database has been providing free, online access to an international, cross-disciplinary collection of journal articles, reports, books, and dissertations on psychological trauma and its consequences. PILOTS offers a custom thesaurus focused on PTSD and trauma, as well as a thorough listing of psychological tests and measures, to help searchers



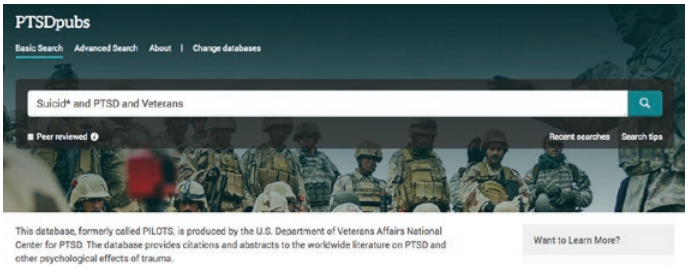
In FY 2018, the National Center for PTSD launched a redesigned website that was informed by Veteran and provider research.

efficiently and precisely navigate the abundant scholarly literature related to PTSD. At the end of the fiscal year, the database contained more than 61,000 items, and users ran more than 45 million searches during the year.

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



Semantic visualization of CBT subject terms used in PTSDpubs.



The PILOTS database was rebranded as PTSDpubs in FY 2018.

FY 2018 Communication Resources at a Glance

Website (www.ptsd.va.gov)
8.1 million views

Facebook
144,002 likes

Mobile Apps
699,908 downloads of 16 apps

PTSD Research Quarterly
55,044 subscribers

YouTube Videos
675,000 views

Clinician's Trauma Update-Online
45,673 subscribers

PTSD Monthly Update Newsletter
321,561 subscribers

Twitter
34,902 followers

About the National Center for PTSD

History

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

Organization

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

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

National Center for PTSD Quick Facts

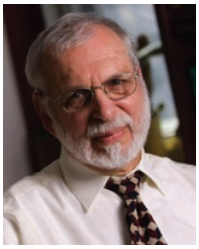
- The National Center for PTSD was formed in 1989
- The Center has seven Divisions across the U.S., each with a distinct area of focus
- The National Center for PTSD manages the largest PTSD brain bank in the world

Leadership in Fiscal Year 2018

Paula P. Schnurr, PhD

Executive Director,
Executive Division, VT

Professor of Psychiatry, Geisel School of Medicine at Dartmouth



Matthew J. Friedman, MD, PhD

Senior Advisor and Founding Executive Director
Executive Division, VT

Professor of Psychiatry and of Pharmacology and Toxicology, Geisel School of Medicine at Dartmouth

Jessica L. Hamblen, PhD

Deputy for Education
Executive Division, VT

Associate Professor of Psychiatry, Geisel School of Medicine at Dartmouth

Paul E. Holtzheimer, MD

Deputy for Research
Executive Division, VT

Associate Professor of Psychiatry, Geisel School of Medicine at Dartmouth

Terence M. Keane, PhD

Division Director
Behavioral Science Division, MA

Professor of Psychiatry and Assistant Dean for Research, Boston University School of Medicine

John H. Krystal, MD

Division Director
Clinical Neurosciences Division, CT

Robert L. McNeil, Jr. Professor of Translational Research and Chairman of the Department of Psychiatry, Yale University School of Medicine

Josef I. Ruzek, PhD

Division Director (Oct-Apr)
Dissemination and Training Division, CA

Professor (Clinical Professor-Affiliated), Stanford University; Associate Professor, Palo Alto University

Craig S. Rosen, PhD

Deputy Director (Oct-Apr) Acting, Division Director (May-Sept)
Dissemination and Training Division, CA

Associate Professor of Psychiatry and Behavioral Sciences, Stanford University School of Medicine

Rani Hoff, PhD, MPH

Division Director
Evaluation Division, CT

Director of the Northeast Program Evaluation Center, CT

Professor of Psychiatry, Yale University School of Medicine

Tara E. Galovski, PhD

Division Director
Women's Health Sciences Division, MA

Associate Professor of Psychiatry, Boston University School of Medicine

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National Institute of Mental Health

Sandro Galea, MD, DrPH
Boston University School of Health

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

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

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

Available Appendices

APPENDIX A
Acronyms Used in Appendix B

APPENDIX B
Fiscal Year 2018 Research Narrative

APPENDIX C
Fiscal Year 2018 Funding

APPENDIX D
Fiscal Year 2018 Publications

APPENDIX E
Fiscal Year 2018 In Press and Advance Online Publications

APPENDIX F
Fiscal Year 2018 Scientific Presentations

APPENDIX G
Fiscal Year 2018 Educational Presentations

APPENDIX H
Fiscal Year 2018 Editorial Board Activities

EXECUTIVE DIVISION
VA Medical Center (116D)
215 North Main Street
White River Junction, VT 05009

BEHAVIORAL SCIENCE DIVISION
VA Boston Healthcare System (116B-2)
150 South Huntington Avenue
Boston, MA 02130

CLINICAL NEUROSCIENCES DIVISION
Psychiatry Service (116A)
VA Medical Center
950 Campbell Avenue
West Haven, CT 06516

DISSEMINATION AND TRAINING DIVISION
VA Palo Alto Health Care System
Building 334-PTSD
795 Willow Road
Menlo Park, CA 94025

EVALUATION DIVISION (NEPEC)
VA Connecticut Healthcare System (182)
950 Campbell Avenue
West Haven, CT 06516

PACIFIC ISLANDS DIVISION
3375 Koapaka Street
Suite 1-560
Honolulu, HI 96819

WOMEN'S HEALTH SCIENCES DIVISION
VA Boston Healthcare System (116B-3)
150 South Huntington Street
Boston, MA 02130

National Center for PTSD
POSTTRAUMATIC STRESS DISORDER