

National Center for PTSD

Fiscal Year 2015 Annual Report



IMPLEMENTATION SCIENCE

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A version of the National Center for PTSD Fiscal Year 2015 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/annual_report.asp.

Acronyms Used in the Text

13C-MRS Carbon-13 Magnetic Resonance Spectroscopy	HSR&D Health Services Research & Development	PET Positron Emission Tomography
BTBI Blast-Related Traumatic Brain Injury	ICD International Classification of Diseases	PILOTS Published International Literature on Traumatic Stress
CAP Consortium to Alleviate PTSD	IPV Intimate Partner Violence	PTSD Posttraumatic Stress Disorder
CAPS-5 Clinician-Administered PTSD Scale-5	LATR Later-Adulthood Trauma Reengagement	REDD1 Regulated in Development and DNA Damage Responses 1
CBT Cognitive Behavioral Therapy	MRI Magnetic Resonance Imaging	RNA Ribonucleic Acid
CPT Cognitive Processing Therapy	MRS Magnetic Resonance Spectroscopy	SGK Serum and Glucocorticoid-Regulated Kinase
DARPA Defense Advanced Research Projects Agency	MST Military Sexual Trauma	SKA2 Spindle and Kinetochore Associated Complex Subunit 2
DOD Department of Defense	NEPEC Northeast Program Evaluation Center	STAIR Skills Training in Affect and Interpersonal Regulation
DSM-5 Diagnostic and Statistical Manual of Mental Disorders-5th Edition	NIH National Institutes of Health	TBI Traumatic Brain Injury
EMDR Eye Movement Desensitization and Reprocessing	NIMH National Institute of Mental Health	TRAIN TrainingFinder Real-Time Affiliate Integrated Network
FAAH Fatty Acid Amid Hydrolase	NMDA N-Methyl-D-Aspartate	VA Department of Veterans Affairs
fMRI Functional MRI	OMHO Office of Mental Health Operations	VALOR Veterans After-Discharge Longitudinal Registry
GABA Gamma-Aminobutyric Acid	PBIN Practice-Based Implementation Network	VHA Veterans Health Administration
GLT1 Glutamate Transporter	PE Prolonged Exposure Therapy	
GWAS Genome-Wide Association Study	PERSIST Promoting Effective, Routine, and Sustained Implementation of Stress Treatments	
HPA Hypothalamic-Pituitary-Adrenal Axis		

From the Executive Director



PAULA P. SCHNURR

Dr. Paula P. Schnurr is the Executive Director of the National Center for PTSD; she served as Deputy Executive Director from the time of the Center's founding in 1989 to 2014. She is a Research Professor of Psychiatry at the Geisel School of Medicine at Dartmouth and Editor of the Clinician's Trauma Update-Online.

The primary mission of the Department of Veterans Affairs (VA) National Center for Posttraumatic Stress Disorder (PTSD) has always been to improve the lives of the nation's Veterans. Over the years as new and better PTSD treatments have become available, our staff has been deeply engaged in the process of dissemination and training, working to ensure that Veterans have access to the very best evidence-based treatments available.

During that time our efforts at dissemination have ranged from simple distribution of information — through both printed and, more recently, electronic means — to workshops and "train the trainer" sessions, and then to more hands-on methods such as the creation of a PTSD Mentoring Program to support PTSD leaders in clinics throughout VA. More recently we have taken the next step, moving into the relatively new field of implementation science: the rigorous research to identify the most effective ways to facilitate implementation of evidence-based practice for PTSD through our large and complex health care system. We are excited about the results of the projects that have been completed or are underway, and have devoted the introductory section of this Annual Report to reviewing progress in this area. I hope you'll take a few minutes to review that section.

The balance of this Annual Report outlines, first, some of the major research projects at National Center locations around the country. We are especially pleased to report on the progress that has been made in establishing the PTSD Brain Bank, under the direction of Former National Center Executive Director Dr. Matthew Friedman. The Annual Report also highlights the tremendous strides we have made in the area of PTSD education, with particular emphasis on the use of new technologies, including web-based resources and mobile apps. A complete listing of our activities is contained in a series of Tables at the back of the document.

Before I close, I'd like to extend a warm welcome to Dr. Tara Galovski, who recently joined us as Director of the Women's Health Sciences Division in Boston. She is a terrific addition to our staff of accomplished professionals, and we are delighted to have her on board. Also, congratulations are in order for Dr. Jessica Hamblen of the Executive Division for receiving the 2015 David M. Worthen Award for Career Achievement in Educational Excellence from the Veterans Health Administration (VHA), a wonderful honor.

Please feel free to contact any of our seven centers of excellence across the country, or to visit our website at ptsd.va.gov, to find out more about any of the operations of the National Center.

Paula P. Schnurr

Implementation Science: Putting Evidence-Based Treatments into Practice

Since its inception the National Center for Posttraumatic Stress Disorder (PTSD) has been in the forefront of developing new and innovative treatments for PTSD, with

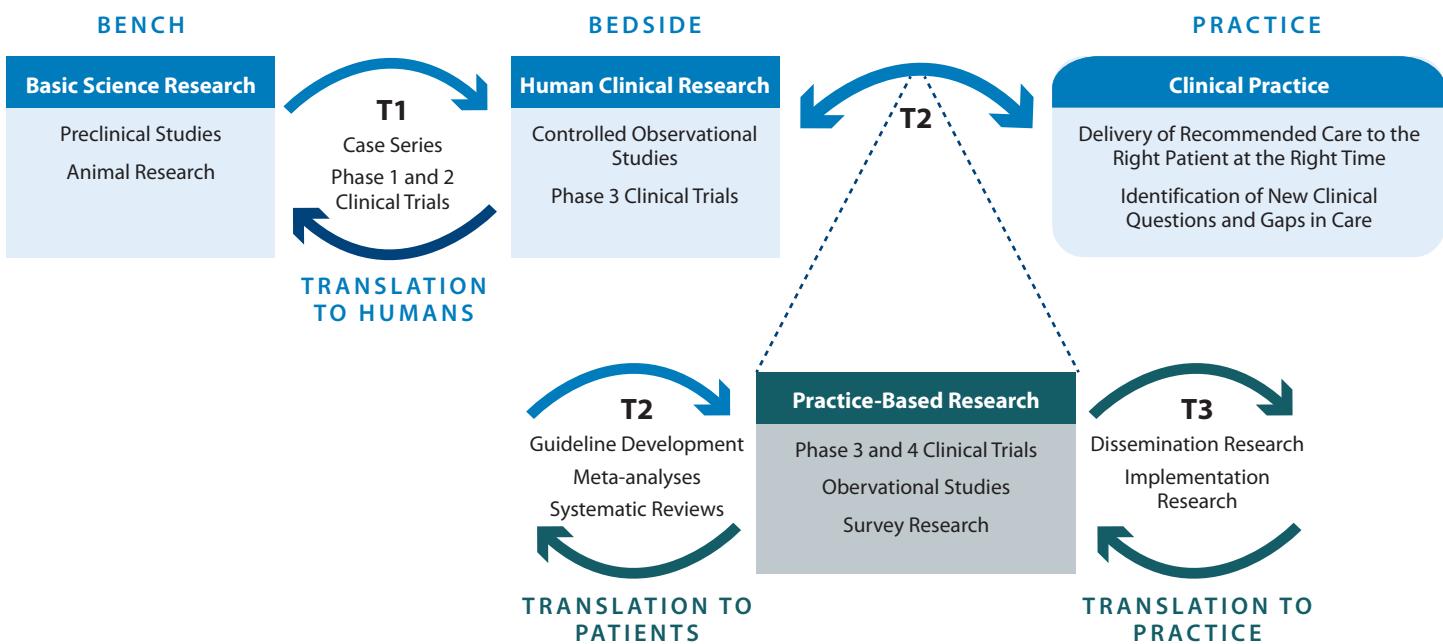


IMPLEMENTATION SCIENCE aims to bring rigorous research methods to the study of both the facilitators and the bottlenecks — social, behavioral, economic, logistical, managerial — that influence the rate of implementation, and to test new approaches to delivering care.

the aim of helping Veterans and others who are dealing with the aftermath of traumatic stress. But despite the proven efficacy of many treatments, and the extensive efforts expended on training of clinicians, adoption of the latest treatments into standard practice can be frustratingly slow.

Many activities in the National Center are focused on improving the rate at which evidence-based treatments gain acceptance and usage throughout the mental health system, with the ultimate goal of making life better for the nation's Veterans and others with PTSD. A key strategy that is becoming increasingly important is the emerging field of implementation science.

Implementation science aims to bring rigorous research methods to the study of both the facilitators and the bottlenecks — social, behavioral, economic, logistical, managerial — that influence the rate of implementation, and to test new approaches to delivering care. According to the National Institutes of Health, implementation science "seeks to understand the behavior of health care professionals and other stakeholders as a key variable in the sustainable uptake, adoption, and implementation of evidence-based interventions."



Westfall JM, Mold J, Fagnan L. Practice-Based Research—"Blue Highways" on the NIH Roadmap. *JAMA*. 2007;297(4):403-406. doi:10.1001/jama.297.4.403

Evidence-based treatments

The National Center's researchers are leaders in the development and testing of treatments for PTSD, including approaches that involve medications and various forms of psychotherapy. From the beginning they played a crucial role in sorting through the possible treatment approaches and conducting research to determine which ones would be most effective in the clinical setting.

In 2006, VA began a national training program to disseminate two therapies that had been shown to be effective in the treatment of PTSD: Cognitive Processing Therapy (CPT) and Prolonged Exposure (PE). In CPT the therapist works with a patient to look objectively at the traumatic events that led to their PTSD, to challenge their assumptions, and eventually to work through their emotional responses. In PE the patient confronts the traumatic memories directly and, with the help of the therapist, becomes desensitized to them. At present these cognitive behavioral therapies are among the few treatments where such compelling empirical evidence of efficacy has been demonstrated.

VA has embraced these evidence-based therapies. The VA Uniform Mental Health Services Handbook now specifically states that all Veterans with PTSD must have access to CPT and PE, and altogether more than 6,000 practitioners have been trained to deliver these treatments.

Understanding the barriers

In spite of all these efforts, however, widespread adoption of these treatments into general usage in the field has remained elusive. Today, nearly a decade after the national training program began, and despite the proven efficacy of the treatments, only a percentage of eligible Veterans are being offered CPT or PE to treat their PTSD. According to Dr. Josef Ruzek of the National Center's Dissemination and Training Division in Palo Alto, CA, "We are just beginning to grasp the difficulties of changing practices in a very complex health care system."

"We are just beginning to grasp the difficulties of changing practices in a very complex health care system."

-Dr. Josef Ruzek

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Anecdotal evidence indicates that the reasons for non-adoption are many and varied. Some clinic leaders and individual practitioners are content with the therapeutic approaches they have used for years and see no compelling reason to change. Others go through the training but lack the confidence to begin using the treatments when they are back home, after time has passed. Others cite logistical barriers at clinics: scheduling systems that won't allow for longer sessions, the inability

THE NATIONAL CENTER IN PUBLICATIONS

Journal of Traumatic Stress
January 2015, 28, 1–4

Training in the Implementation of Prolonged Exposure Therapy: Provider Correlates of Treatment

Afsoon Eftekhari,¹ Jill J. Crowley,¹ Josef I. Ruzek,^{1,2,3} Donn W. Kuhn,¹ and Craig S. Rosen^{1,3}

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DOI: 10.1080/08862605.2015.103086

RESEARCH

Relationships between clinician-level attributes and fidelity-consistent and fidelity-inconsistent modifications to an evidence-based psychotherapy

Shannon Wilsey Stirman^{1*}, Cassidy A Gutner¹, Paul Crits-Christoph², Julie Edmunds³, Arthur C. Evans⁴ and Rinad S. Beidas⁵

ISTSS International Society for Traumatic Stress Studies

Adm Policy Ment Health (2015) 42:462–473
DOI 10.1007/s10488-014-0590-0

ORIGINAL ARTICLE

A Quantitative Test of an Implementation Framework in 38 VA Residential PTSD Programs

Joan M. Cook · Stephanie Dinnen · Josef Ruzek · James C. Coyne · Pa

Psychological Trauma: Theory, Research, Practice, and Policy
2016, Vol. 8, No. 3, 348–355

JMIR MENTAL HEALTH
Original Paper

mHealth in the Wild: Using Novel Data to Examine the Reach, Use, and Impact of PTSD Coach

Craig N Makin-Byrd¹, PhD; Kelly M Ramsey¹, PhD; and Michael J. Foa², PhD

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Owen et al

CrossMark

In the public domain
<https://doi.org/10.1037/a0000006>

Effects of a Comprehensive Training Program on Clinician Beliefs About and Intention to Use Prolonged Exposure Therapy for PTSD

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Edna B. Foa and Elizabeth A. Hembree
University of Pennsylvania

Bradley E. Karlin
Johns Hopkins University

to offer individual sessions in a clinic that relies on group therapy, and similar issues. In addition, sometimes the Veterans themselves are reluctant to seek treatment for mental health issues.

In order to better understand these challenges, and to begin to outline strategies to address them, the National Center, in some cases in concert with other agencies, has launched an array of implementation science studies. These research efforts are beginning to shed light on the barriers that are preventing full adoption of evidence-based treatments throughout the VA system.

Assessing the situation

The first, and in many ways thorniest, problem is simply quantifying the prevalence of usage of these treatments in the field. In order to study the implementation of a practice, you first have to be able to measure its delivery; without accurate measurement, determining the effectiveness of an approach or improvement over time



is not possible. According to National Center Executive Director Dr. Paula Schnurr, "We struggle just to count the number of people receiving these treatments. VA's computerized records don't provide information on what kind of treatment is being received — the records might show only that a patient is receiving psychotherapy in general."

Dr. Schnurr added, "And even if we knew that, it's difficult to quantify the denominator of the equation — that is, how many people should be eligible for these treatments. Should it be all Veterans with PTSD who come to mental health clinics, or only those who are treated in specialized PTSD programs? And how do we account for people who were offered the treatment and declined?"

To address this problem, efforts have been undertaken to extract information from the notes that clinicians maintain after each session with a patient. VHA has released note templates that can be used by clinicians to indicate delivery of evidence-based psychotherapies, but preliminary data suggest that they are not as widely used as intended. Dr. Craig Rosen of the Dissemination and Training Division is collaborating with Dr. Nina Sayer at the Minneapolis VA to pilot an approach using natural language processing. In this technique, the computer searches for certain key words in the notes that correspond to elements of a particular treatment protocol. Then an algorithm can be used to identify how many patients are receiving each kind of treatment.

Studying and developing the infrastructure

To begin to understand the barriers to implementation of CPT and PE, Dr. Rosen and Dr. Sayer have launched a major research effort entitled Promoting Effective, Routine, and Sustained Implementation of Stress Treatments, or PERSIST. In this study, researchers first identified PTSD clinics within VA that were using the evidence-based treatments to a high, medium, or low extent and then used qualitative interviews and surveys to identify the reasons for those differences. The objective was to look beyond the training of individual practitioners and to study the entire infrastructure of the work unit.

"How the clinic defines its role and mission are important," says Dr. Rosen. "Some clinics see themselves as a place for providing evidence-based therapy, while others provide a range of treatments that may or may not have been researched." A clinic's ability to define itself narrowly is dependent on what other facilities are available in their area. "If you want to specialize in a particular kind of treatment, then there needs to be a generalist place in the area to go to for everything else. Often there is only one clinic in an area, doing everything."

Another remarkable study began six years ago with residential PTSD treatment programs, in which researchers were able to follow more than 200 providers in 38 sites over a period of years. Dr. Joan Cook of the National Center's Evaluation Division in West Haven, CT, who is leading this study, notes that they have found a number of structural barriers to widespread implementation of evidence-based treatments. Though many residential providers reported being trained, adoption was not universal. Use of PE and CPT at the programs ranged from no adoption, to use with only selected patients, to serving as the core of the program's offerings.

For both PE and CPT, a supportive organizational context with dedicated time and resources, and incentives and mandates were related to implementation. "The caseload at a clinic is critical," Dr. Cook reports. "These treatments can require 60 or 90 minute sessions over a period of 12 weeks, and clinics often schedule only 30 minute sessions. So providers will select relatively few patients to receive a particular treatment."

PBI NETWORK NEWSLETTERS

PBI NETWORK NEWSLETTERS

SUMMER 2014 **PBI Network Newsletter**

WINTER 2015 **PBI Network Newsletter**

SUMMER 2015 **PBI Network Newsletter**

National Center for PTSD

What is the Practice-Based Implementation Network?

The PBI Network is a VA/DoD collaboration that includes the National Center for PTSD, VISN6 MIRECC, Mental Health QUERI, and the Defense Centers of Excellence. The Network is designed to engage providers and leadership in the implementation of evidence-based treatments and other cutting edge practices for PTSD and related issues, creating opportunities for conversations between providers, leadership, and researchers to develop effective structures and implementation systems for clinical innovations. The PBI Network promotes successful implementation by incorporating feedback from providers and leaders in clinics nationwide who are implementing change. The ultimate goal is to facilitate more efficient dissemination and ongoing implementation of best practices for PTSD treatment for Veterans.

Click the image below to visit our VA SharePoint!

Updates from the Field:
Outcomes Monitoring at the San Diego VA

Abigail Angkaw, Ph.D.
Internal Champion
San Diego, CA

In all cases, researchers note that encouragement from the leadership of the facility is essential. The tracking and monitoring system in a clinic is important here: clinics that are able to routinely measure successes are more able to convince practitioners to use the evidence-based treatments, and to promote word-of-mouth among the clinic's leadership and staff.

"PE and CPT treatments can require 60 or 90 minute sessions over a period of 12 weeks, and clinics often schedule only 30 minute sessions. So providers will select relatively few patients to receive a particular treatment."

-Dr. Joan Cook

Dr. Ruzek and his colleagues are helping to address implementation challenges through establishment of a Practice-Based Implementation Network, or PBIN, to work on overcoming some of the logistical barriers to implementation of evidence-based treatments. They have set up a network of 18 VA and 10 Defense Department (DOD) sites that have agreed to become leaders in testing and adoption of new innovations and improvements. Their first project involves outcomes monitoring, or helping programs do a better job of tracking and compiling measures of effectiveness.

Ongoing support for individual clinicians

Once a clinician has gone through training in these evidence-based treatments, what kind of support do they need on an ongoing basis? "We know that PE in particular is an emotionally challenging approach," says Dr. Ruzek. "Clinicians have a fear of intensifying emotional trauma, of seeing their patients in additional distress," despite the fact that there is no evidence that PE is harmful. Clearly it isn't enough to attend a workshop and go home with some forms and manuals, but what more is required?

An effort aimed at learning how educational resources can influence the delivery of evidence-based practices is the PTSD Practitioner Registry, directed by Dr. Ruzek. Clinicians first report on what treatments they are using, and they are then randomly assigned to various web-based training materials, with and without interactive consultation. Ultimately the team hopes to identify which materials

The image shows two screenshots of the PTSD Clinicians Exchange website. The top screenshot shows the homepage with a banner about engagement and best practices. The bottom screenshot shows the 'Clinicians' Corner Overview' page, which includes a discussion forum, Ask an Expert/Peer Support Specialist, Interviews, Vignettes, Set a Goal, and Share Your Successes sections. It also features a photo of four clinicians in a meeting.

and support services are most effective in encouraging providers to adopt the treatments.

Dr. Shannon Wiltsey Stirman of the Dissemination and Training Division recently concluded a study conducted with VA Canada that compared different levels of follow-up with clinicians in the field: weekly phone calls to review cases and receive feedback, with and without the use of recordings of sessions, compared to having someone simply listen to and rate the clinician's sessions. Interestingly — and surprisingly — the group that participated in the weekly calls without the use of recordings showed the most improvement; the researchers are now working to understand why this would be the case.

Adapting the treatments

Life in a clinical setting can be vastly different from the controlled conditions of clinical trials and training sessions. As practitioners work with these treatments, they may seek to alter some of the elements of the protocol in order to fit them more comfortably into the infrastructure of their working environments or the needs of specific patients. They may think about reducing the number of sessions —

for example, from 12 to six — or shortening the sessions to 30 minutes instead of 60 or 90, or delivering the treatment in a group setting instead of individual sessions. They might want to modify the PTSD treatments in order to fit with other treatments the patient is receiving, such as treatment for substance abuse. Or a worksheet might need to be simplified so it can be used with patients who have literacy issues.

"Clinicians can make adaptations to the treatment if they determine that that is the best answer, but we want to use data to make these decisions."

- Dr. Shannon Wiltsey Stirman

Dr. Wiltsey Stirman is studying the issue of fidelity, including determining whether a treatment is still effective when it has been altered in various ways or delivered in less controlled settings. She says that "Clinicians can make adaptations to the treatment if they determine that that is the best answer, but we want to use data to make these decisions." The process that is being used to

adapt treatments is based on principles of Continuous Quality Improvement and involves identifying barriers to using CPT, identifying evidence-based potential solutions, planning an adaptation, and collecting practice-level data to determine whether it is working. By now, CPT has been tested in a wide variety of settings and configurations, so the likelihood that it can be adapted for use different circumstances is good.

Best practices in medications

Implementation of evidence-based best practices is also an issue in medication protocols used with PTSD patients. As with other therapies, clinicians who have been prescribing certain medications to patients for years are often reluctant to change. One particular effort, now in its third year and under the direction of Dr. Nancy Bernardy of the National Center's Executive Division in White River Junction, VT, is aimed at decreasing the use of benzodiazepines and off-label atypical antipsychotics. In recent years research has shown that these medications are not beneficial in PTSD and can actually cause harm, particularly in combination with drugs that are being prescribed for other conditions, such as opioids for pain.

Dr. Bernardy's project involves academic detailing, a series of one-on-one educational visits by clinical pharmacists to individual clinicians, in which they discuss the drawbacks of benzodiazepines. The pharmacists also

provide information on alternative medications and other therapies, and suggest approaches to helping patients taper down from the benzodiazepines that they may have been taking for years. At the same time, information in the form of posters and brochures are provided to the clinic, aimed at education of both the providers and individual patients.

The project is ongoing, and early results show that prescribing of these medications is beginning to come down. According to Dr. Bernardy, the one-on-one visits are crucial, but the posters and other materials are a good addition as well. "One clinician told me that she uses our poster that lists symptoms as a basis to have a discussion with her patients to promote tapering down their medications."

Looking to the future ...

Implementation science is a relatively new discipline, and presents enormous untapped potential for improving the delivery of needed mental health services to Veterans and others with PTSD. Looking to the future, there are many avenues for focus and study.

Improving clinician training is an important priority for the future. "Are there ways to provide training to clinicians that are scalable and less expensive?" asks Dr. Rosen. "Could we incorporate peer coaching? At the moment there are no models for that." Similarly, it would be extremely helpful

EDUCATING PROVIDERS AND PATIENTS

Things Change...
Including Your PTSD Medication

If you are taking ANTI-ANXIETY DRUGS for PTSD, you may be at risk. Benzodiazepines such as Alprazolam, Clonazepam, Diazepam, Lorazepam, and Xanax, among others, can contribute to PTSD symptoms. One thing that won't change is your care. If you're involved in your care, you're involved in your treatment.

Is it time to change your treatments? Contact your health care provider.

Treatment Options

- Rx: Safe medications
- Talk therapy
- Slow tapering plan to reduce your risks

www.PTSV.va.gov

Sound Familiar?
PTSD Treatment Works

What are my treatment options?

MEDICATION OPTIONS: Medications can help reduce symptoms of PTSD. There are more options than ever for successful PTSD treatment.

TALK THERAPY OPTIONS: There are many types of talk therapy that can help reduce symptoms of PTSD. These include Cognitive Processing Therapy, Prolonged Exposure, Eye Movement Desensitization and Reprocessing, and EMDR.

HOW IT WORKS: Both medication and talk therapy can help to treat PTSD symptoms. A customized treatment plan may include one or more of these options.

Next steps? Talk to your health care provider.

Both medication and talk therapy can help to treat PTSD symptoms. A customized treatment plan may include one or more of these options.

What are the next steps? The next step is to contact your health care provider.

Which treatments are right for me?

How long will I need treatment?

When can I start?

How soon will I start to feel better?

www.PTSV.va.gov

Safer PTSD Treatments are Available

Talk to your Health Care Provider about your Options.

Safe Medications

Talk Therapy

Slow Tapering Plan Reduce Your Risks

For more information about PTSD treatment options, visit www.PTSV.va.gov

PTSD

An effort aimed at decreasing the use of benzodiazepines and off-label atypical antipsychotics involves a series of one-on-one educational visits by clinical pharmacists to individual clinicians. At the same time, information in the form of posters and brochures are provided to the clinic, aimed at education of both the providers and individual patients.

to find ways to deliver the treatments themselves more economically and in ways that require less time, effort and clinician skill. Dr. Wiltsey Stirman's work in fidelity may provide avenues for adapting treatments in many ways.

Dr. Bernardy cites the need to understand the reasons patients discontinue their treatment. "It's hard to learn the reasons people drop out. Some might be leaving because they believe they are better now, and some



might leave because of a crisis situation. Perhaps we need a protocol where someone can stop treatment, address the crisis, then get back on track." Dr. Cook also cites the need to enhance patient engagement. Though her study of residential programs involved monitoring thousands of patients over a period of years, she notes that "when patients are released and go out into the world, we can lose track of them."

The possibilities of utilizing new technologies would seem to be endless, and efforts to study the effectiveness of these technologies should be high on the list of priorities for the National Center. Certainly computer-based training and delivery of treatments could dramatically broaden the reach of PTSD care; "We could go from helping thousands to helping hundreds of thousands," says Dr. Ruzek. For

example, one study that is currently underway is looking at the efficacy of delivering treatment through a video conference link.

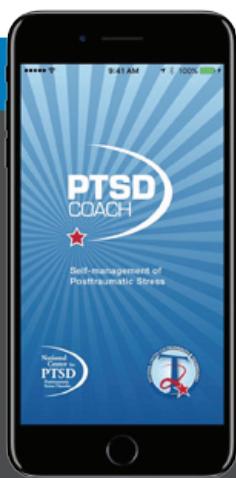
Technology could also be valuable in other areas. Dr. Wiltsey Stirman notes the role technology could play in data collection: "Could we tap into patient's worksheet information from their mobile apps to collect data on symptom tracking and other variables?" There could also be more direct patient benefits. Dr. Ruzek cites the example of a patient who called a suicide crisis hotline: "The patient had been using the mobile PTSD Coach application, and when the agent asked him what had prompted him to call the hotline, he said 'My phone told me to.'"

Dr. Cook sees potential in harnessing the experiences and expertise of providers in the field to inform research in implementation science. "The providers have a clinical wisdom from working with Veterans day in and day out. They are incredibly busy, and I'm so grateful to them for so graciously sticking with us across almost five yearly data points. That's a long time."

The effort being expended in disseminating these specific evidence-based treatments hopefully won't end when these treatments are more fully adopted. The lessons learned from implementation science research can be employed with other treatments and other programs in the future. A better understanding of clinic logistics and clinician practice should be able to inform implementation efforts across practice settings. Dr. Schnurr sees great promise for the future. "Our implementation science portfolio enables us to help VA offer the best care for Veterans with PTSD."

TECHNOLOGY

The patient had been using the mobile PTSD Coach app, and when the agent asked him what had prompted him to call the crisis hotline, he said "My phone told me to."



Providing Leadership in PTSD Research



The National Center for PTSD helps to improve the care of Veterans and others affected by trauma through its strong commitment to research on the prevention, causes, assessment, and treatment of traumatic stress disorders. During FY 2015, National Center investigators led 103 funded studies, ranging from small studies at a single location to large multi-site projects.

The National Center's research activities are characterized by several distinctive features. First, most research on PTSD is conducted at a point in time closer to when actual traumatic events occurred — and in some cases even prior to military deployment — instead of years or decades after the fact. Second, the National Center's position within VA gives it the opportunity to work closely with clinicians on the front lines and gain a "real world" perspective that can inform research and smooth the process of getting results implemented in the field where they can be of direct benefit to Veterans.

Perhaps most important, the National Center's research is conducted through seven centers of excellence across the US, and often involves partner organizations in the government, universities, and agencies outside the US. This geographic reach and range of professional credentials make the National Center uniquely qualified to lead major projects involving large populations, complex issues, and multidisciplinary requirements.

One such effort is the establishment of the first national VA PTSD Brain Bank, being led by Dr. Matthew Friedman,

Senior Advisor to the National Center and its founding Executive Director. The Brain Bank is a brain tissue biorepository that is intended to support research on the causes, progression, and treatment of PTSD. Enrollment of potential post-mortem donors began in May 2015, with the launch of the Brain Bank website. Two new sites in North Carolina and Florida are being added, and inventory as of the end of FY 2015 is 50 PTSD and comparison tissue specimens, with another 40 being acquired from another Brain Bank. Currently, 20 additional individuals have volunteered to be donors.

The National Center's research is conducted through seven centers of excellence across the US, and often involves partner organizations in the government, universities, and agencies outside the US.



A second major research project is the Consortium to Alleviate PTSD (CAP). In 2013 President Obama announced a \$45 million award would be granted over five years, and the National Center partnered with the STRONG STAR Consortium at the University of Texas Health Science Center in San Antonio to successfully compete for this award. The CAP will provide an array of cutting-edge clinical treatment trials and biological studies including efforts to learn more about the biology and physiology of PTSD development, using response to treatment to inform

subsequent diagnosis, prediction of disease outcome, and new or improved treatment methods.

The sections that follow highlight some of the research projects that are taking place at the seven Divisions across the US.

Executive Division

The Executive Division, located in White River Junction, Vermont, is the National Center's headquarters. The Division 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; the Division also oversees the Brain Bank.

Clinical Trials. The Division is involved in several ongoing clinical trials. Enrollment continued in Cooperative Studies Program #591, a groundbreaking study comparing PE and CPT. The study, which will eventually enroll 900 Veterans at 17 sites across the country, has already enrolled over 300 male and female Veterans. 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.

PTSD rarely occurs without another comorbid condition; one such condition, substance use disorder, is particularly

challenging because providers are often hesitant to treat PTSD until the substance use is under control. Two trials are exploring whether PTSD and substance use disorders can be treated simultaneously. In the first, recruitment is ongoing for a trial comparing cognitive behavioral therapy (CBT) for PTSD plus the usual outpatient addiction care, versus usual care alone for Veterans with PTSD and substance use disorders. A second trial of two psychotherapies for comorbid alcohol use disorder and PTSD (PE and Seeking Safety) has randomized over 80 participants. A third trial to evaluate a brief protocol to reduce guilt and shame related to traumatic events among Iraq and Afghanistan Veterans was recently funded.

Dissemination and Implementation Research. In addition to the academic detailing initiative discussed in the Implementation Science section of this Annual Report, the Division works on initiatives aimed at assessing models of care and improving evidence-based practice. During FY 2015 investigators surveyed a national sample of Veterans and non-Veterans to assess decision-making needs and preferences for PTSD treatment; results are informing the development of the first publicly available online decision aid for PTSD (discussed in greater detail on page 13).

In other efforts, a study of models of care in PTSD clinical teams found that the majority of programs offer preparatory groups aimed at improving readiness for evidence-based PTSD treatments, despite a lack of



empirical evidence that these groups are needed or effective. Work also began on a project that applies novel ways of using electronic data from the medical record and operational methods in order to understand dimensions of quality of PTSD care within VA.



Behavioral Science Division

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

Prospective Cohort Studies. Two large prospective cohort studies are aimed at providing information on the long-term sequelae of PTSD. Project VALOR (Veterans After-Discharge Longitudinal Registry) is a registry of 1,649 male and female Veterans of Iraq and Afghanistan who became users of VA services after 2002. This project aims to provide data about health outcomes associated with PTSD, in part supplemented by clinical information from VA electronic medical records. Data collection for the third and final phase is underway.



Military personnel were assessed before deployment and at several intervals afterward, making it the first prospective, longitudinal study ever conducted on the psychological impact of warzone stress.

The second project is the Neurocognition Deployment Health Study, which began 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 ever conducted on the psychological impact of warzone stress. The

design allows examination of long-term emotional and neuropsychological outcomes of warzone stress and traumatic brain injury, as well as quality of life and functioning.

Long-Term Effects of Aging. The Division is collaborating with investigators from the VA Boston Healthcare System to study the long-term effects of military service on mental and physical health in aging Veterans. One project created a [website](#) to provide information about military service variables that are available in publicly accessible data sets. The project also recruited a national, multidisciplinary group of experts to develop and implement a research agenda on the long-term effects of military service on accelerated aging. A book derived from the data sets is being published by the American Psychological Association, and related work was published recently in a special issue of *The Gerontologist*.

Investigators also are examining a phenomenon termed later-adulthood trauma reengagement (LATR), in which older combat Veterans adaptively re-engage with wartime memories in an effort to build coherence or find meaning in those experiences. A study of LATR is examining the utility of a 10-week psychosocial discussion group for older combat Veterans.

Assessment. The Division continues to lead in research on the assessment of PTSD. Ongoing efforts include evaluation of the proposed International Classification of Diseases (ICD-11) revisions to the PTSD diagnosis and evaluation of the new Minnesota Multiphasic Personality Inventory-2 Restructured Form scales in relation to the assessment of the dissociative subtype of PTSD, and PTSD-

related malingering. Development is underway for a new measure designed to assess the dissociative subtype of PTSD.

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 designed to assess the psychological status of Warfighters. These tools examine patterns in everyday behaviors to detect subtle changes that may be indicative of PTSD, depression, and suicidal ideation.

Biomarkers. Researchers are examining neural biomarkers of PTSD and blast-related traumatic brain injury (bTBI) to clarify the contribution of mild bTBI and psychiatric conditions to the various deficits experienced by military personnel with blast injury. One finding is that bTBI accompanied by loss of consciousness (but not PTSD) is associated with less structural integrity of the brain, and that level of brain integrity mediates both physical post-concussion symptoms such as headaches and clinically meaningful cognitive impairment.

Biomarker research at the Division also includes a portfolio of genetic and epigenetic studies. Key collaborations with the Translational Research Center for TBI and Stress Disorders at VA Boston have produced a number of key findings, including:

- The moderating role of an oxidative stress-related gene in the negative relationship between PTSD and cortical thickness in frontal brain regions.
- The moderating role of genetic variation in the serotonin receptor in the negative relationship between PTSD and connectivity across brain regions.

- Methylation of the SKA2 gene predicting PTSD and suicide.
- The contribution of PTSD to accelerated cellular aging in the epigenome.

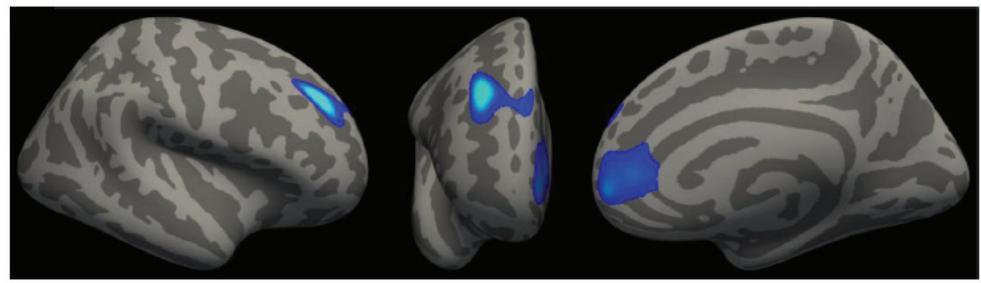
Division investigators also are collaborating with the Psychiatric Genomic Consortium PTSD work group on large-scale genome-wide association and methylation studies. Related work is focused on the potential for PTSD-related premature onset of metabolic syndrome and related reductions in neural integrity.

The Division is conducting functional and structural magnetic resonance imaging (MRI) studies to identify neural circuitry involved in PTSD. Structural MRI data suggest that a reduced volume of particular subfields of the hippocampus is associated with PTSD and aging, which may be related to the maintenance 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 PTSD manage negative emotions.

Treatment Research. The Division continues to conduct pioneering research on treatments for PTSD, with key aims of overcoming barriers to seeking care, reducing dropout, and increasing efficiency of care delivery. One study is evaluating an Internet-based treatment, VetChange, designed for Veterans of combat in Iraq and Afghanistan with risky use of alcohol and PTSD-related distress. A mobile adaptation of VetChange, developed with support from the Bristol Myers Squibb Foundation and the National Center, is now under evaluation.

Other efforts are aimed at developing and testing efficient therapist-delivered interventions or treatment extenders. A prime example is a brief, exposure-based

BIOMARKERS



Lateral (left), anterior (middle), and medial (right) views of right hemisphere cortical thickness clusters associated with the rs1042357/rs10852889 x PTSD severity.

(M.W. Miller et al. / Psychoneuroendocrinology 62 (2015) 359–365)



treatment for PTSD that previously demonstrated strong effects with non-Veteran patients. Two trials will evaluate interventions for Veterans with Gulf War illness: one will compare Tai Chi with a wellness intervention to assess their impact on chronic pain, and a second is evaluating a low-level light treatment that has been shown to improve mitochondrial functioning within damaged brain cells. Pilot testing will begin in FY 2016 for a mobile app that was developed with the Dissemination and Training Division.

Clinical Neurosciences Division

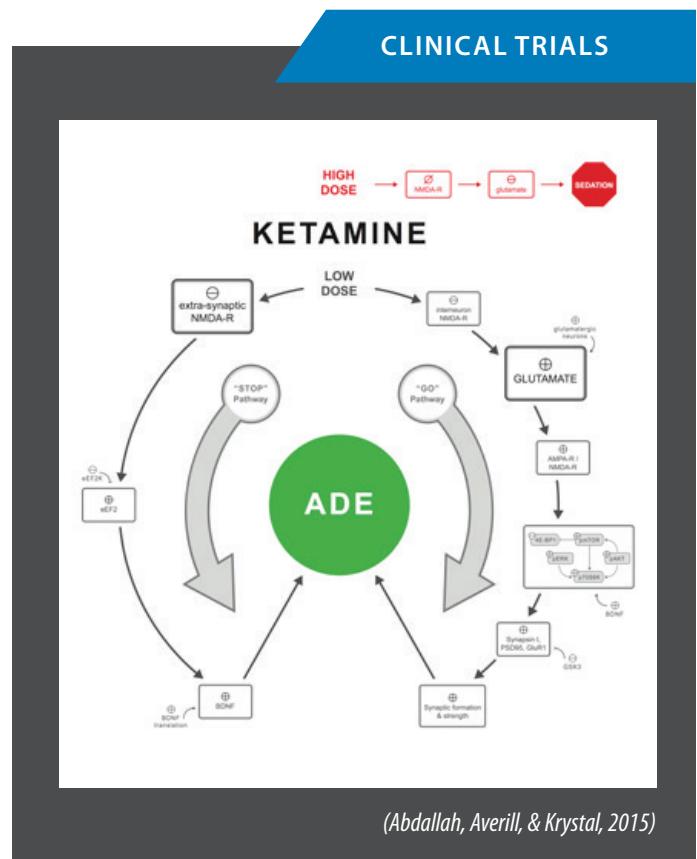
The Clinical Neurosciences Division, located in West Haven, Connecticut, focuses on the neurobiological, imaging and genetic study of traumatic stress; paradigms of risk and resilience; and pharmacotherapeutic interventions for the treatment of PTSD and comorbid conditions.

Clinical Trials. In FY 2015, the Division continued to implement trials aimed at translating neurobiological knowledge into tangible benefits for patients dealing with PTSD and its associated comorbidities. Investigators are studying several new pharmacological agents to target PTSD and depression, including: riluzole, a glutamate modulating agent; the immunosuppressant rapamycin; neuropeptide Y (NPY), an endogenous neurohormone; the neuropeptide oxytocin; and a novel fatty acid amid hydrolase (FAAH).

A series of trials utilizing ketamine, an N-methyl-D-aspartate (NMDA) receptor antagonist, are also continuing. Some of the specific trials include a multi-site clinical trial examining the safety and efficacy of repeated dosing and dose-dependent alterations in connectivity and cognitive

performance in PTSD; a project examining the effect of ketamine on memory reconsolidation and extinction in PTSD; and a seven-day PE therapy trial combined with a single dose of ketamine, to investigate neuroplasticity, learning, and fear inhibition in PTSD patients following ketamine infusion.

Several additional studies were completed recently. One involved a trial of an intensive integrated treatment for Veterans with PTSD and comorbid chronic pain. A trial of the alpha-1 adrenergic receptor antagonist prazosin for comorbid PTSD and alcohol use was also published.



Finally, a study using machine learning to predict treatment outcome in depression was completed. Future applications of this work may be used to learn which premorbid factors are predictors of subsequent PTSD.

Neuroimaging. The Division provides essential infrastructure for the development of new technology and methods that allow for the exploration of human neuronal chemicals, brain structure, and function. Research continued on the role of glutamate transporter expression on stress response and resilience, utilizing advanced neuroimaging methodologies in conjunction with several pharmacotherapy trials. Work is also underway on a biomarker-informed trial using recently developed seven Tesla 1H-MRS (magnetic resonance spectroscopy) methods combined with MRI and fMRI to evaluate the psychopharmacologic effects of riluzole on PTSD symptoms, hippocampal morphometry, and anterior cingulate glutamate levels. Additional imaging analyses have demonstrated the negative associations of higher PTSD severity on structural and functional measures of the brain related to traumatic stress and depression.



Results of the investigation into the role of neuroimmune dysfunction in PTSD may yield insight into mechanism-based and treatable neuroimmune conditions implicated in PTSD and related syndromes.

Positron emission tomography (PET) imaging techniques are also being utilized to integrate complex preclinical and clinical neurobiological models across several neurochemical systems and structures. One project is investigating the role of synaptic vesicle glycoprotein 2A (SV2a) levels in stress models of depression and anxiety. PET studies are also ongoing with a newly developed paradigm to study the effects of ketamine on metabotropic glutamate receptor 5(mGluR5) availability.

Another recent area of exploration using PET imaging techniques includes investigation into the role of neuroimmune dysfunction in PTSD, specifically the role of activated microglia and inflammatory cytokines in neurodegeneration and its potential to mediate PTSD expression. Results of this study may yield insight into mechanism-based and treatable neuroimmune conditions implicated in PTSD and related syndromes.



The Division also has a number of cognitive neuroscience projects using fMRI methods. Topics include neural correlates of aversive learning and contextual fear conditioning; neurocognitive mechanisms related to impaired decision making; reconsolidation-extinction learning; the effect of a FAAH inhibitor on safety learning and fear acquisition; the role of the hypothalamic-pituitary-adrenal (HPA) axis dysregulation versus impulse inhibition deficits in dual diagnosis PTSD subjects with impaired decision making; and the role of noradrenergic systems in cognition, particularly in establishing biomarkers for hyperarousal.

Molecular Neuroscience, Genetics, and Stress

Vulnerability. The Clinical Neurosciences Division is the main research site for the VA National PTSD Brain Bank. Recent projects include whole genome microarray expression to examine abnormally expressed gene products. For example, research is examining proteins involved in neuronal plasticity such as serum and glucocorticoid-regulated kinase 1 (SGK1) and regulated in development and DNA damage responses 1 (REDD1). Preliminary work on RNA sequencing and proteomics analysis in another post-mortem study will be made available to the scientific community via an online system, affording the most widespread use of this critical information.

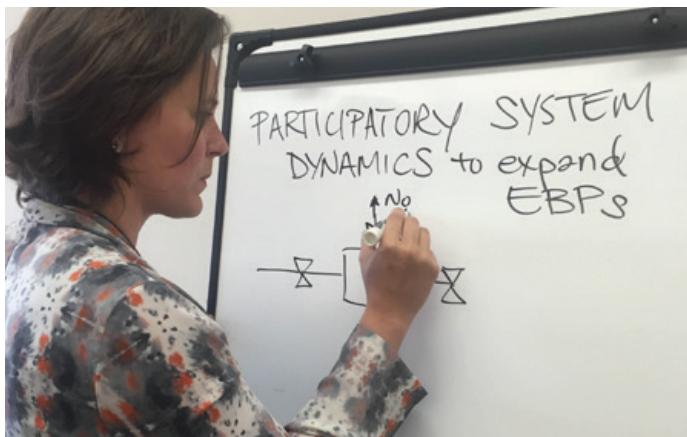
The molecular study of stress response on neural circuitry and cellular physiology may also help to identify areas of risk vulnerability and diagnostic approaches to inform treatments. Current projects include one involving the use of glutamatergic-based pharmacotherapies to enhance functional expression on stress response and resilience of the glutamate transporter GLT1; studies designed to isolate specific populations of glutamate and gamma-

Aminobutyric acid (γ -Aminobutyric acid) (GABA) neuron subtypes; and RNA sequencing analysis to identify additional targets for PTSD drug development. Ongoing work also includes carbon-13 magnetic resonance spectroscopy (13C-MRS) studies designed to characterize a dose response relationship between the effects of NMDA receptor antagonist drugs such as ketamine on amino acid neurotransmitter cycling and rodent models of behavior.

The Division continues its collaboration with the Psychiatric Genomics PTSD Consortium, and co-leads a VA PTSD genome-wide association study (GWAS) project with colleagues from the University of California, San Diego. One area of focus is a new statistical modeling strategy to study sex and genetic variant interactions, which is expected to detect more genetic variants via genome-wide scan and may explain the higher prevalence of PTSD in women than in men following trauma exposure. Also, data from the Army Study to Assess Risk and Resilience in Service Members is being analyzed to identify behaviors, genetic and gene-environmental risk predictors associated with morbidity and mortality.

Translational Epidemiology. Researchers from around the National Center collaborated on projects that used the National Health and Resilience in Veterans database to characterize psychosocial, genetic, environmental, and gene-environmental determinants of PTSD and other related health outcomes. This work has led to research in the areas of posttraumatic growth, moral injury, the epidemiology of DSM-5 PTSD and sub-threshold DSM-5 PTSD, characterization and prevalence of the DSM 5-PTSD Dissociative subtype, and gene expression profiles as markers of PTSD risk and resilience in U.S. military Veterans.

Studies funded by the Centers for Disease Control and Prevention and the National Institute for Occupational



Safety and Health also continue to examine psychosocial, genetic, epigenetic, and neuroendocrine factors associated with longitudinal trajectories of PTSD in a large cohort of first responders who were involved in the 2001 attack on the World Trade Center in New York.

Dissemination and Training Division

The Dissemination and Training Division, located in Palo Alto, California, conducts research on patient needs and preferences; implementation strategies to enhance training and delivery of evidence-based assessment and treatment; development and testing of new or adapted treatments that reflect patient preferences; and development and testing of treatments that employ technology-based delivery of services to improve access, quality, and outcomes in VA care.

A 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 the individual.



Patient Needs and Preferences. Several studies are looking into the development and evaluation of strategies to quickly identify patient needs, patients at risk, and patient preferences. A new study funded by Health Services Research & Development (HSR&D) will develop a brief measure of patient characteristics associated with effective engagement in care, which is expected to guide identification of the type and amount of service resources needed to engage Veterans into care. A 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 the individual.

Additional studies concern an evaluation of a brief screen for drug use among primary care patients with and without PTSD, and barriers to cannabis treatment among Veterans with PTSD. Along with collaborators at the Women's Health Sciences Division, Division staff completed research and evaluation work on screening and treatment of military sexual trauma.



Novel and Adapted Treatment Interventions. The Division is engaged in a large number of research projects dealing with new approaches to treatment interventions.

- Randomized controlled trials are underway to evaluate patient outcomes under various delivery strategies, in a variety of treatment settings, and using different interventions.
- A large multi-site clinical trial funded by the National Institute of Mental Health (NIMH) is assessing the effectiveness of a flexibly delivered evidence-based PTSD skills plus exposure treatment among civilian public sector employees.
- A study funded by the Department of Defense (DOD) 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: one is evaluating cognitive remediation for alcohol use disorder and PTSD; a second examines Acceptance and Commitment Therapy in patients with comorbid PTSD and substance use problems; a third is evaluating the effectiveness of exercise for treating cannabis dependence.

Finally, a collaborative effort involving investigators from the Division and the Minneapolis VA continued working on a study of organization- and team-level factors influencing the use of evidence-based PTSD psychotherapies in VA clinics.

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 from two successful pilot studies, a new study will assess whether use of the PTSD Coach mobile app can reduce PTSD symptoms in Veterans in primary care. Several pilot studies are underway of other mobile phone apps, including PTSD Family Coach for family members of individuals with PTSD, Parenting2Go, Mindfulness, and CBT for Insomnia.

A trial of a national sample of trauma-exposed individuals is exploring the efficacy of web-based "brain games," which are designed to build cognitive abilities, versus ordinary games. Results showed that individuals with low to moderate symptoms showed greater improvement in symptoms and emotion regulation with the brain games. Finally, another study done in collaboration with investigators from the Minneapolis VA Medical Center is testing a web-based intervention to help National Guard families encourage their loved ones to seek mental health care.

Evaluation Division

The Evaluation Division in West Haven, Connecticut, works with the VA's Northeast Program Evaluation Center (NEPEC), which has broad responsibilities within the VA Office of Mental Health Operations (OMHO) to evaluate their programs, including those for specialized treatment



of PTSD. NEPEC has continued to monitor and assess PTSD treatment at VA, and also monitors the effort to improve psychotropic medication prescribing practices at VHA.

In other projects, data collection has been completed for an investigation of the implementation of PE and CPT in 38

residential PTSD treatment programs. Findings have been published on provider perspectives on perceived effective residential treatment ingredients, provider perceptions of dissuading factors to the use of PE and CPT, and changes in implementation of PE and CPT over time.

The Survey of Returning Veterans (SERV) study is a repeated panel study of gender differences in psychiatric status and functioning among Veterans who have served in Iraq and Afghanistan. SERV recruited 850 participants, 40% of whom are women, and interviewed them at three-month intervals for periods ranging from one to three years.

The national psychotropic drug safety initiative has entered its second year, and program evaluation results are about to be released, including data on changes in practice in prescribing for PTSD. The Division continues to work with the Mentoring Program and OMHO technical assistants to provide technical assistance and to respond to requests from specialized programs and staff in the field on policy, operations, handbook implementation, and the provision of evidence-based practices.

A new national VA initiative, Measurement Based Care in Mental Health, was launched by Mental Health Services and OMHO in June of 2015, and planning is underway for a pilot program for an initial rollout. Two Division staff are supporting the initial pilot program evaluation; members of the Evaluation, Executive, and Dissemination and Training Divisions are involved in the initiative as well.

Pacific Islands Division

The Pacific Islands Division, located in Honolulu, Hawaii, was created to focus on understanding of ethnocultural



Several ongoing studies identify unique risk and resilience correlates of PTSD in ethnically and racially diverse Veterans as well as their response to evidence-based PTSD treatments.

issues in PTSD and in the uses of advanced technology, such as telemedicine, to enhance access to care.

Ethnocultural Research. Several ongoing studies are examining ethnic and racial minority populations. The

studies identify unique risk and resilience correlates of PTSD in ethnically and racially diverse Veterans as well as their response to evidence-based PTSD treatments. One study, funded by DOD, is investigating the life-course effects of military service, and in particular combat exposure, on late-life dementias, marital and family structures, and mental and physical health; this project involves Japanese-American men and was initiated using data from the Honolulu Asian-Aging study. Another study completed in FY 2015 examined racial and ethnic disparities in receipt of individual psychotherapy in a national cohort of Veterans recently diagnosed with PTSD.



Currently underway is a study examining perceptions of providers and retention in VA psychotherapy and pharmacotherapy for PTSD by African American, Latino, and white Veterans. At the request of the Director of the Office of Health Equity in VA, Division investigators developed a policy brief detailing recommendations to address racial and ethnic disparities in VHA treatment of PTSD.

Treatment Research. Much of the Division's research into PTSD treatments involves the use of technology to improve access to care, especially for Veterans in remote locations. In one study, researchers found video teleconferencing to be an acceptable and effective means of providing intervention services to rural trauma survivors. Investigators also recently completed trials of advanced technology to reach rural Veterans with PTSD who do not have easy access to specialized care.

Investigators are also comparing home-based technology, office-based technology, and physically going into a Veteran's home to provide individual PTSD treatment. Division researchers were recently funded to examine

how home-based technology can also be used to increase access to couples-based PTSD treatment for Veterans and their spouses.

A study of an anger management intervention enhanced with a mobile app was recently completed in a sample of rural Veterans. A pilot study of a web-based anger management skills course is currently underway, investigating the feasibility of the intervention and impact of brief coaching calls on treatment uptake and response. In addition, a systematic review of screening tools for PTSD in primary care settings was completed this year and concluded that those developed by the National Center and colleagues had the best performance.

Women's Health Sciences Division

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



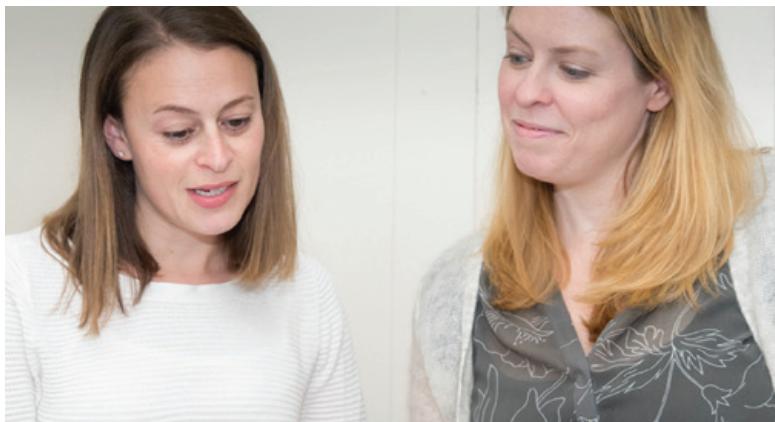
A longitudinal study, which is a public-private partnership between VA, DOD, academia, and industry, will investigate the reintegration experiences and service use of male and female Veterans.

Gender Differences. The Division is continuing its research on gender differences in Veterans of Iraq and Afghanistan. A large national survey of this population, which included the updated Deployment Risk and Resilience Inventory-2, is being used to study the relationship between deployment experiences and post-deployment mental health. Another longitudinal study, which is a public-private partnership between VA, DOD, academia, and industry, will investigate the reintegration experiences and service use of male and female Veterans.

Other studies include an examination of gender differences in the effects of deployment stressors and associated mental health sequelae on occupational and family functioning. Investigators are also conducting research on the associations between PTSD, treatment for

PTSD, suicidal behavior, and death from suicide among VA health care users. For example, one cohort study, funded by the American Foundation for Suicide Prevention, examines differences in both suicide and suicide attempts in female and male VHA patients with and without PTSD.

Gender differences are being examined in a community sample and a sample of law enforcement officers recently exposed to community violence. This prospective study seeks to examine positive and negative mental health outcomes as well as a host of health-related behaviors. Differences in barriers to seeking treatment across study groups are also being investigated.



Military Sexual Trauma and Partner Violence. Exposure to interpersonal violence is a key issue of study at the Division. Research related to military sexual trauma (MST) includes a recent qualitative investigation to identify unique factors associated with MST and a mixed-methods investigation of Veterans' experiences with and preferences for VHA's universal MST screening program.

Intimate partner violence (IPV) among female Veterans is a strong focus area as well. Researchers are examining best practices for IPV identification, assessment, treatment, and the targeting of health services within the VHA context. Focusing on interpersonal trauma more broadly, a qualitative study is being conducted to examine VHA primary care providers' experiences and reactions in providing care to female Veterans with interpersonal trauma histories.

Biomarkers. Work at the Division includes studies aimed at understanding the basic biological processes underlying PTSD. Among the biomarkers being studied are sex hormones and derivatives associated with increased fear conditioning across the menstrual cycle in PTSD;

GABAergic neuroprotective steroids in men and in women across the menstrual cycle; the role played by stress-modulating biological factors in reducing symptoms of withdrawal and negative mood during smoking cessation in trauma-exposed individuals with and without PTSD; and the gene-environment interplay in the comorbidity of PTSD and eating disorders.

Treatment Research. Several intervention studies are looking into more efficient treatment formats for CPT. With DOD funding from the STRONG STAR consortium in Texas, investigators are completing studies that examine the relative effectiveness of CPT delivered in a group versus individual format and a variable-length CPT protocol to evaluate whether treatment benefits may be achieved in fewer sessions. Other intervention studies focused on traumatized populations include:

- Application of a physical exercise intervention to elucidate the shared neurobiology of PTSD and chronic pain.
- A study of the effectiveness of a transdiagnostic treatment, the Unified Protocol, for trauma-exposed Veterans with co-occurring diagnoses.
- Examination of a mindfulness-based training as a tool to assist Veterans coping with post-deployment intrusive thoughts.

Finally, analyses continued on two completed NIH trials, one that is examining therapist fidelity and patient variables that contribute to change in PTSD during CPT, and one examining the role of sleep improvement in augmenting recovery from PTSD and depression.

Awards Received by National Center Researchers in FY 2015

National Center researchers have received many professional awards and honors, and a list of those received in FY 2015 is included in the table above. Please see Appendix A at the back of this Annual Report for a complete listing of research projects, key investigators, collaborating/partner agencies, and associated funding sources.

Recipient/Division	Award Name	Organization
Chadi Abdallah Clinical Neurosciences	Patterson Trust Award in Clinical Research	Robert Leet and Clara Guthrie Patterson Trust
Alan Anticevic Clinical Neurosciences	The Klerman Prize for Exceptional Clinical Research by a Young Investigator	Brain & Behavior Research Foundation
Marylene Cloitre Dissemination and Training	Outstanding Contributions to Practice in Trauma Psychology	American Psychological Association, Division 56
Joan Cook Evaluation	APA Award for Outstanding Service to the Field of Trauma Psychology	American Psychological Association, Division 56
Joel Gelernter Clinical Neurosciences	James B. Isaacson Award	International Society for Biomedical Research on Alcoholism and the National Foundation for Prevention of Chemical Dependency Disease
Cassidy Gutner Women's Health Sciences	APA Early Career Achievement Award	American Psychological Association
Robert Pietrzak Clinical Neurosciences	Award for Outstanding Contribution to Trauma Psychology By An Early Career Psychologist	American Psychological Association, Division 56
Naomi Samimi Sadeh Behavioral Sciences	APA Early Career Achievement Award	American Psychological Association
Dawne Vogt Women's Health Sciences	VA Women's Health Practice Based Research Network Impact Award	VA HSR&D Women's Health Research Network
Erika Wolf Behavioral Sciences	Chaim and Bela Danieli Young Professional Award	International Society for Traumatic Stress Studies

Promoting PTSD Education: Training, Dissemination, Communication

The National Center's educational efforts are aimed at bringing the most up-to-date knowledge and understanding of PTSD to the widest possible audiences, especially those who are entrusted with the care of Veterans. During FY 2015 the professionals on the National Center staff 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.

The National Center is in a unique position to provide these educational services. The multi-site structure and the network of collaborations with government agencies, universities, and health care organizations provides a reach and web of contacts that facilitate the transfer of information. The ongoing relationship and communication with clinicians throughout VA offers tremendous opportunities for National Center professionals to both teach and learn from providers in the field. And the National Center has always been in the forefront of using new technologies in its educational efforts, from the establishment of the online PILOTS database in 1989 — well before the use of the Internet was established as a research tool — to today's development of mobile apps and online resources.

Promoting Awareness and Engagement in Treatment

About Face. 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. To help this process along, the National Center created [AboutFace](#) to help trauma survivors learn about others who have successfully overcome stigma and other obstacles to getting help. AboutFace is an award-winning online

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.



video gallery of Veterans telling their stories of how PTSD treatment has turned their lives around. In FY 2015 features were developed that describe two Veterans' experiences with evidence-based PTSD treatment in VA. These examples of digital storytelling — a blend of audio, video, photography, and text — will debut on the site in 2016.

PTSD Treatment Decision Aid. Choosing which PTSD treatment to engage in can be complicated, as the options, from the untested to those with significant evidence, are numerous. Even deciding among evidence-based treatments presents challenges, because there is no single treatment that works for everyone, and there is little guidance on which treatments best address individual patients' needs. The online [PTSD Treatment Decision Aid](#), which has been developed over the past several years and will launch in 2016, will help patients learn about the benefits and risks of evidence-based treatment options, and it will also guide them in clarifying their preferences and treatment goals.

Developing Self-Help and Treatment Companion Resources

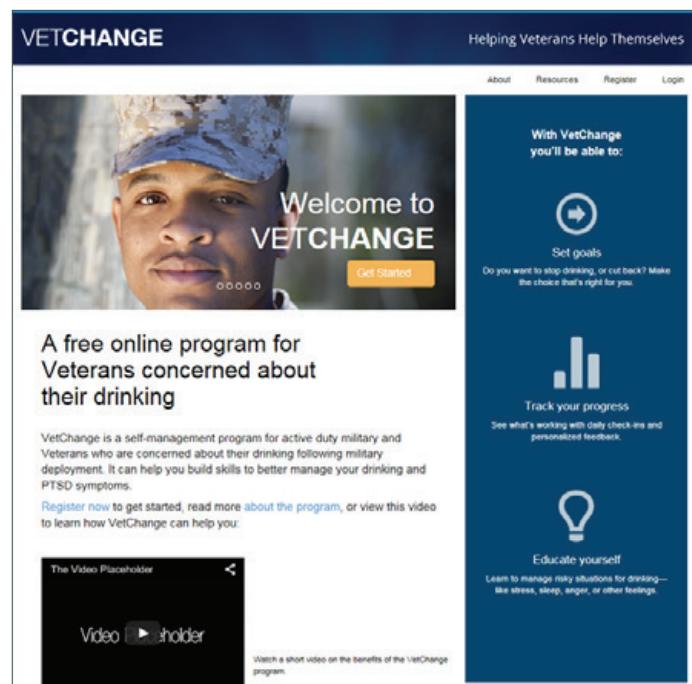
Mobile Phone Applications. In 2011, the National Center partnered with DOD to launch the first publicly available VA app, the award-winning [PTSD Coach](#). The app offers users information and assistance on self-assessment, coping skills, and other resources wherever they are and whenever they need it. Since then the National Center has launched eleven mobile apps in total, all available free of charge to the public, including self-help tools and treatment companions that support the delivery of PE, CPT, and CBT for Insomnia. Two of the apps, CBT-I Coach and Mindfulness Coach, were updated during FY 2015, and developers continue to work on both new releases and updates of existing apps. The National Center was awarded the Innovation in American Government Award for its mobile health apps in 2015.

VetChange. Heavy drinking is a common problem in Veterans of the most recent conflicts, and research has shown that Veterans who struggle with problem drinking patterns often have PTSD symptoms as well. VetChange, an online self-management program for Veterans concerned about their drinking, addresses both issues. A randomized controlled trial of an initial version of VetChange showed that the intervention helped many Veterans reduce both their alcohol consumption and PTSD symptoms. Development of the final version, with enhanced interactivity, video tips, and responsive design, continued in FY 2015, and the product should be available to the public in 2016.



MOBILE APPS

The National Center has launched eleven mobile apps, all available free of charge to the public, including self-help tools and treatment companions that support the delivery of PE, CPT, and CBT for Insomnia.



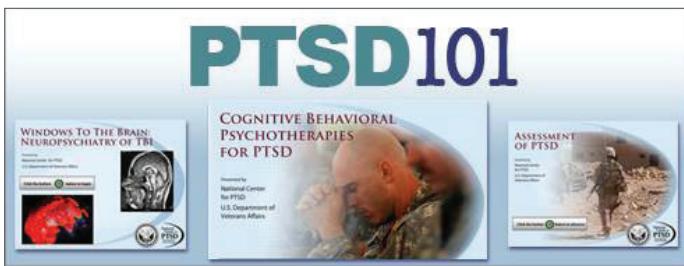
The screenshot shows the homepage of the VetChange website. At the top, there's a navigation bar with links for "About," "Resources," "Register," and "Login." Below the header is a large image of a smiling man wearing a military-style headband. To his right, the text "Welcome to VETCHANGE" is displayed, along with a "Get Started" button. To the right of the main image, there's a sidebar with three sections: "With VetChange you'll be able to:" (with icons for "Set goals" and "Track your progress"), and "Educate yourself" (with an icon for "Manage risky situations for drinking—the stress, sleep, anger, or other feelings"). The central area contains a brief description of the program and a call to action to register.

STAIR. Treatments like CPT, PE, and Eye Movement Desensitization and Reprocessing (EMDR) have long been the gold standard interventions for people with PTSD. Increasingly, however, providers and patients alike 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 Affect and Interpersonal Regulation) is an evidence-based treatment to enhance patients' emotion regulation and interpersonal functioning. An online STAIR training for providers was launched in 2013, and this year development began on a self-help version of the intervention.

Educating Professionals about Evidence-based PTSD Care

Continuing Education Courses. Educating VA providers in the assessment and treatment of PTSD and related issues is vital to the National Center's mission. [Continuing education resources](#) are all freely available online to providers within VA as well as to community-based providers, researchers, trainees, and paraprofessionals. In FY 2015, the courses were made available in [TRAIN](#) (TrainingFinder Real-time Affiliate Integrated Network), thereby making them even more easily accessible to diverse audiences.

The flagship PTSD 101 series offers a broad array of hour-long courses that are available both online and as



podcasts. The lecture series From the War Zone to the Home Front, a collaboration with the Red Sox Foundation and Massachusetts General Hospital's Home Base Program, features on-demand lectures on topics relevant to caring for Veterans of the Iraq and Afghanistan wars and their families.

In recent years, Web-based continuing education offerings have been expanded 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 these interventions into their practices. Current and soon-to-be-released courses include STAIR, Managing Anger, [Assessment and Treatment of Sleep Problems in PTSD](#), Behavioral Chain Analysis, and Clinician-Administered PTSD Scale-5 (CAPS-5) Online Training for Providers.

CAPS-5 Clinical Training. In response to requests from clinicians, researchers, and disability raters, the National Center is developing a comprehensive online training on the CAPS-5. The course blends traditional didactic material with extensive video segments to give learners a full understanding of the requirements for administration and scoring of the instrument. The course will launch in 2016.

Supporting Providers in the Field

One of the most critical tasks of the National Center is to encourage the adoption of evidence-based treatments by providers, clinic managers, and the systems in which they work. Much of the recent work in implementation such as the PERSIST project and the Practice-Based Implementation Network was discussed in the implementation science section at the beginning of this Annual Report. In addition, the National Center continued to be involved in a number of ongoing educational activities aimed at supporting providers in the field.



PTSD Consultation Program. Launched in 2011, the [PTSD Consultation Program](#) connects VA providers — whether they work within PTSD clinics or in other settings — with expert PTSD consultants. The program's consultants are

FISCAL YEAR 2015 STATS AT A GLANCE



6.9 M
Visitors



115,050
Likes



22,900
Followers



143,364
Subscribers



32,000
Subscribers



34,000
Subscribers



available via phone or email, and provide information about treating Veterans with PTSD and answering any questions related to the disorder. Starting this year, the program has been expanded to offer consultation and resources to non-VA providers who see Veterans in the community. The effort to reach more providers has been supported by a targeted web-based marketing campaign, and that campaign has paid off with a 17% increase in consultations.



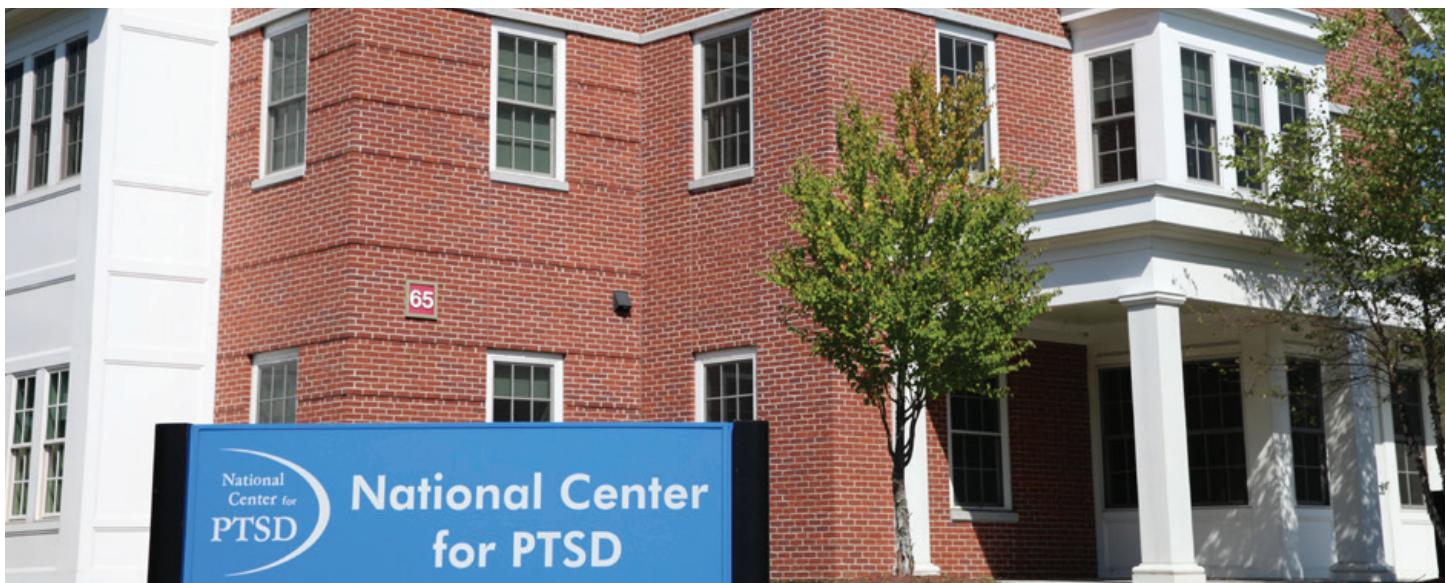
PILOTS is a cross-disciplinary index that is available to any user, anywhere in the world. In FY 2015 users ran more than 161,000 searches in the PILOTS database.

programs and implementing best administrative and clinical practices.

Published International Literature on Traumatic Stress. For nearly a quarter of a century the [Published International Literature on Traumatic Stress \(PILOTS\)](#) database has provided free access to the world's scholarship on psychological trauma and its consequences. PILOTS is a cross-disciplinary index that is available to any user, anywhere in the world, and currently includes more than 54,000 items. In FY 2015 users ran more than 161,000 searches in the database. PILOTS 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.

Please see Appendices B-E at the back of this Annual Report for a comprehensive listing of publications, presentations, and editorial board activities during FY 2015.

VA PTSD Mentoring Program. PTSD program directors throughout VA face a myriad of challenges to effective delivery of PTSD treatments to the Veterans seen in their clinics. Beginning in 2008 at the time that CPT and PE were being disseminated throughout VA, the National Center initiated the VA PTSD Mentoring Program. The program connects program directors with seasoned PTSD professionals within their regions who act as mentors. Mentors work with PTSD program directors both on a regular and as-needed basis to help them meet the increased demand for treatment by restructuring existing



About the National Center for PTSD

Posttraumatic Stress Disorder, or PTSD, is a psychiatric disorder that can occur after experiencing or witnessing a life-threatening event such as military combat, natural disasters, terrorist incidents, serious accidents, or violent personal assaults. Most survivors of such trauma will have stress reactions such as nightmares and sleep disorders, flashbacks, and feelings of detachment or estrangement, but will return to normal after a little time. Some people, however, will find that their symptoms do not go away on their own, or may even get worse over time, and they may go on to develop PTSD.

PTSD is not new — references appeared in the medical literature as far back as the Civil War — but careful research and documentation of PTSD began in earnest after the Vietnam War. The disorder has subsequently been observed in all Veteran populations; in United Nations peacekeeping

forces; and in survivors of natural disasters, mass violence, or personal attack.

The National Center for Posttraumatic Stress Disorder was formed in 1989 to advance the clinical care and social welfare of America's Veterans by promoting research; training health care and related personnel; and serving as an information resource for Veterans, professionals, and others across the US and, eventually, around the world. Today, the National Center's staff comprises some of the top professionals in the field, located in seven divisions across the US. Its unique position within VA and its extensive network of collaborating agencies and individuals enable the National Center to call upon a wide range of expertise and viewpoints, and to expand its reach to include an ever-growing population of people in need of its services.

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.



103 externally funded studies and 349 publications in FY 2015.

Leadership in 2015



Paula P. Schnurr, PhD

Executive Director, Executive Division, VT

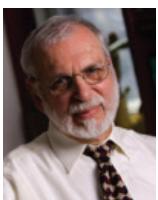
Research Professor of Psychiatry, Geisel School of Medicine at Dartmouth



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



Amy Street, PhD

Acting Division Director (Oct-Aug), Women's Health Sciences Division, MA

Associate Professor of Psychiatry, Boston University School of Medicine



Tara Galovski, PhD

Division Director (Aug-Sept), Women's Health Sciences Division, MA

Associate Professor of Psychiatry, Boston University School of Medicine

Advisory Boards

Fiscal Year 2014 Educational Advisory Board

Chair: Dean Kilpatrick, PhD

National Crime Victims Research & Treatment Center, Medical University of South Carolina

COL Dave Benedek, MD, LTC, MC, USA

Uniformed Services University of the Health Sciences

Thomas J. Berger, PhD

Vietnam Veterans of America

Craig Bryan, PsyD, ABPP

National Center for Veterans Studies, The University of Utah

Ann Feder, LCSW

James J. Peters VA Medical Center

Charles M. Flora, MSW

Readjustment Counseling Service, Department of Veterans Affairs

Michael R. Kauth, PhD

VA South Central MIRECC

Jackie Maffucci, PhD

Iraq and Afghanistan Veterans of America

Lisa A. Marsch, PhD

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

David S. Riggs, PhD

Center for Deployment Psychology, Uniformed Services University of the Health Sciences

Fiscal Year 2014 Scientific Advisory Board

Chair: John Fairbank, PhD

National Center for Child Traumatic Stress, Duke University Medical Center

COL Carl A. Castro, PhD

Center for Innovation and Research on Veterans and Military Families; University of Southern California

Gerald Culliton, MPA, FACHE

VA Connecticut Healthcare System

Bradford L. Felker, MD

VA Puget Sound Health Care System; University of Washington School of Medicine

JoAnn Kirchner, MD

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

Karestan Koenen, PhD

Columbia University Mailman School of Public Health

Thomas C. Neylan, MD

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

Alan L. Peterson, PhD, ABPP

University of Texas Health Science Center

Barbara O. Rothbaum, PhD, ABPP

Emory University School of Medicine

Farris Tuma, ScD

National Institute of Mental Health

Robert Ursano, MD

Uniformed Services University Medical School

Ex-Officio: Theresa Gleason, PhD

VA Clinical Science Research & Development

Available Appendices

A. Funding

B. Publications

C. In-Press Publications and Advance Online Publications

D. Scientific Presentations

E. Educational Presentations

F. Editorial Board Activities



EXECUTIVE DIVISION

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BEHAVIORAL SCIENCE DIVISION

VA Boston Healthcare System (1168-2)
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)
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West Haven, CT 06516

PACIFIC ISLANDS DIVISION

3375 Koapaka Street
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WOMEN'S HEALTH SCIENCES DIVISION

VA Boston Healthcare System (1168-3)
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Boston, MA 02130