

APPENDIX A. FISCAL YEAR 2014 RESEARCH NARRATIVE

The National Center for PTSD helps to improve 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 fiscal year (FY) 2014, Center investigators led 117 funded studies, ranging from small studies at a single location to large multisite projects. The Center continued to align its portfolio with the Operational Priorities identified in FY 2013 to optimally serve the field and carry out the Center's mission. These priorities include (1) Biomarkers; (2) *DSM-5*; (3) Treatment efficiency, effectiveness, and engagement; (4) Care delivery, models of care, and system factors; and (5) Implementation.

A major biomarker initiative that gained momentum in FY 2014 is the VA National PTSD Brain Bank. Dr. Matthew Friedman — Senior Advisor to the Center and its founding Executive Director, is directing the consortium, which includes the Uniformed Services University of Health Sciences, the VA Medical Center in San Antonio and in Boston, and the National Center's Behavioral Science and Clinical Neurosciences Divisions. The brain bank will acquire and prepare brain tissue, work to establish a definitive psychiatric diagnosis, promote research by distributing brain tissue based on scientific review of proposals, and facilitate intramural research.

Executive Division

The Executive Division (located in White River Junction, Vermont) supports the National Center's mission by providing leadership, directing program planning, and promoting collaboration to facilitate optimal functioning of each division individually and collectively. The 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.

Clinical Trials

The Executive Division has a long history of participation in VA's Cooperative Studies Program (CSP). Enrollment began for CSP #591, a groundbreaking study comparing Prolonged Exposure (PE) and Cognitive Processing Therapy (CPT). The study, which will enroll 900 Veterans at 17 sites across the country, 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.

Investigators continue to focus on issues that frequently co-occur with PTSD. A 5-site randomized clinical trial was completed of Acceptance and Commitment Therapy (ACT) for distress and impairment in Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn (OEF/OIF/OND) Veterans, and analyses are almost complete; two other trials focusing on co-occurring substance use disorders and PTSD are continuing. One trial compares CPT for PTSD, and usual outpatient addiction care versus usual care alone; the other compares PE with Seeking Safety. Data are currently being analyzed to evaluate whether providing Veterans with a brief educational handout on mild traumatic brain injury (mTBI) can improve their knowledge and understanding of TBI, and the meaning of screening results for mTBI. Secondary analyses will identify clinic-level facilitators and barriers to implementing the handout into practice.

Product Evaluation

Analyses are ongoing of data from the evaluation of several of the National Center's online products. Investigators surveyed civilian and military personnel samples from an online research panel to evaluate the *Understanding PTSD Treatment* course and its companion PDF, as well as *PTSD Coach-Online*. Investigators are also analyzing data from an online survey completed by psychiatrists and general practitioners to assess the impact of one of the Center's PTSD 101 courses, *An Overview of the VA/DoD Clinical Practice Guideline for PTSD*. These evaluation studies offer insights into user and use characteristics, as well as how various products may improve attitudes, behaviors, knowledge, or mental health.

Dissemination and Implementation Research

The Executive Division continues work on several initiatives aimed at assessing models of care and improving evidence-based practice. A survey study to assess patients' decisional needs and preferences for PTSD treatment is in the planning stages; the results will inform the development of an online patient decision aid. An ongoing initiative examines the impact of an academic detailing model to reduce inappropriate prescribing practices for PTSD patients and uses decision support tools to encourage the use of shared decision making. A related project will determine whether using a clinical pharmacist in an academic detailing model can improve local PTSD prescribing practices in rural clinics throughout Vermont and Maine.

In addition to projects aimed at improving clinical practices, investigators are continuing to assess the state of VA care for PTSD. Results of a completed study of models of care within PTSD Clinical Teams will enhance the mission of the PTSD Mentoring Program that is managed by the Executive Division. Work also began on a project that applies novel informatics and operational methods to medical and administrative data in order to understand multiple dimensions of quality of PTSD care within VA.

Behavioral Science Division

The Behavioral Science Division (located in Boston, Massachusetts) conducts research on assessment, postdeployment adjustment, genomic and neuroscience mechanisms of psychopathology, and aging and health; and develops innovative approaches to intervention and treatment delivery.

Prospective Cohort Studies

Key projects include two large prospective cohort studies. The first is Project VALOR, a registry of 1,649 combat Veterans, both male and female, 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 currently under way. The second large investigation, VA Cooperative Study #566, began data collection at the outset of the Iraq War/OIF 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 war zone stress. Data collection examines long-term emotional and neuropsychological outcomes of war zone stress and TBI, as well as health-related quality of life and occupational functioning. A component study examines the adjustment of partners and children of military service members.

Epidemiology and Risk/Resilience

The Behavioral Science Division is collaborating with other investigators from the VA Boston Healthcare System to study the long-term effects of military service on mental and physical health among aging Veterans. One project has created a website to provide researchers with information about military service variables that are available in a number of publicly accessible longitudinal data sets. The project recruited a national, multidisciplinary group of experts to develop and implement a research agenda. A conference in May 2014 featured papers examining the long-term effects of military service on aging using data derived from this array of data sets. The papers currently are being readied for publication.

Assessment

Ongoing efforts include a psychometric evaluation of a new measure to assess the dissociative subtype of PTSD and examination of the impact of the dissociative subtype on responsiveness to PTSD treatment. A related line of research involves the use of new Minnesota Multiphasic Personality Inventory-2 (MMPI-2) Restructured Form scales for the assessment of the dissociative subtype of PTSD and PTSD-related malingering. Behavioral Sciences Division investigators also participated in a consortium of private industries, universities, and government agencies working with the Defense Advanced Research Projects Agency (DARPA) to develop novel analytical tools to assess the psychological status of Warfighters. These tools examine patterns in everyday behaviors to detect subtle changes associated with PTSD, depression, and suicidal ideation.

Biomarkers

Behavioral Sciences Division investigators are examining neural biomarkers of PTSD and blast-related traumatic brain injury (bTBI) in OEF/OIF/OND Veterans. This research aims to clarify the contribution of mild bTBI and psychiatric conditions to the various deficits experienced by military personnel with blast injury. A recent study found that bTBI accompanied by loss of consciousness is associated with decreased structural integrity of the brain; and, in turn, brain integrity is directly related to memory performance.

Biomarker research at the Division also includes a rapidly growing portfolio of genetic studies. So far, this line of work has yielded the first published genome-wide association study (GWAS) of PTSD, several candidate gene studies, and a new gene expression study implicating a glucocorticoid signaling gene in PTSD. Another line of work continues to evaluate the dissociative subtype of PTSD; and a paper has been published examining genetic markers for the symptoms that define the dissociative subtype. Behavioral Sciences Division investigators also are engaged in neuroimaging-genetic analyses focused on PTSD-related neurodegeneration in collaboration with the Translational Research Center for TBI and Stress Disorders (TRACTS) at VA Boston; and the investigators are collaborating with the Psychiatric Genomic Consortium PTSD workgroup on large-scale genome-wide association and methylation studies.

In collaboration with TRACTS investigators, Division researchers have identified alterations in the brain associated with impulsivity in PTSD. A recent study found impulse control deficits were associated with reduced cortical thickness in frontal brain regions involved in flexible decision-making and emotion regulation. A pilot study is under way to assess motivations for types of reckless and self-destructive behavior in trauma-exposed Veterans; and a related effort aims to validate a new measure of risky, impulsive, and self-destructive behavior.

Lastly, the Division is conducting functional and structural magnetic resonance imaging (MRI) studies to identify neural circuitry involved in PTSD. Preliminary data for these projects suggest specific brain regions within the prefrontal cortex that are active when individuals with PTSD manage negative emotions. The findings may yield new insights into brain pathways that can be targeted to enhance emotional regulation and cognitive performance.

Treatment Research

The Behavioral Sciences 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. A prime example is a randomized clinical trial of an 8-session Internet-based treatment *VetChange*, designed for OEF/OIF/OND combat Veterans who report risky use of alcohol and PTSD-related distress. The intervention has been shown to reduce both drinking and PTSD symptoms. A mobile adaptation of *VetChange* is now under development.

Other efforts are aimed at developing and testing efficient therapist-delivered interventions or treatment extenders. The expectation is that these approaches will require less professional staff time and will be easier for patients to complete. A prime example is a brief, exposure-based treatment for PTSD that previously demonstrated strong effects with non-Veteran patients. Current and future studies are testing whether this brief intervention is as effective as CPT and whether it can be implemented successfully with active duty Servicemembers.

Research on factors that link PTSD with aggression toward intimate partners, particularly within OEF/OIF/OND military families, led to the development and evaluation of interventions designed to reduce ongoing aggression and to prevent aggression toward partners. Clinical trials examining two such interventions have been completed during the past year, and efforts are under way to disseminate these programs more widely within the VA.

In the area of complementary interventions, a pilot study investigating Tai Chi exercise for PTSD-related distress demonstrated high satisfaction and enthusiasm for this treatment modality by Veteran participants. Further studies are planned to examine Tai Chi for Gulf War Illness and to measure the impact of Tai Chi on chronic pain that is comorbid with PTSD. Highlighting the innovative work within the Behavioral Sciences Division, a recently funded study will examine the efficacy of a low-level light treatment protocol for Veterans with TBI that is comorbid with PTSD. This novel approach is extrapolated from established methods in photomedicine, based on preclinical studies showing that doses of red and near-infrared light improve mitochondrial functioning within damaged brain cells. The approach is being applied to Veterans with Gulf War Illness under a VA-funded study that has begun data collection.

Clinical Neurosciences Division

The Clinical Neurosciences Division (located in West Haven, Connecticut) supports the National Center's mission through its specialization in neurobiological, imaging, and genetic studies of the physical basis of traumatic stress, risk and resilience factors, pharmacotherapy, and targets of rehabilitation for PTSD and comorbid conditions.

Clinical Trials

The Division's clinical trials program is essential in translating neurobiological knowledge into tangible benefits for patients suffering from PTSD and comorbid disorders. Investigators are examining several new pharmacological agents to target PTSD, including (1) riluzole, a glutamate modulating agent; (2) ketamine, an N-methyl-D-aspartate (NMDA) receptor antagonist; (3) pomaglumetad methionil, a metabotropic glutamate receptor 2/3 (mGlu2/3) agonist; (4) the fatty acid amid hydrolase (FAAH) inhibitor URB597; and (5) neuropeptide Y (NPY), an endogenous neurohormone.

Other trials include the immunosuppressant rapamycin for depression and the sulfonamide anticonvulsant zonisamide, and enhanced CPT for PTSD and comorbid alcohol dependence. Plans are also under way for a trial of buprenorphine and naloxone for PTSD and comorbid opioid dependence. A trial continues for comparing standard care with an intensive integrated treatment for Veterans with PTSD and comorbid chronic pain. A study of the alpha-1 adrenergic receptor antagonist prazosin for PTSD and alcohol use was recently completed.

Neuroimaging

The Clinical Neurosciences Division is a leader in neuroimaging and contributes to the National Center's strategic objective of developing PTSD biomarkers. The Division is co-directing the Consortium to Alleviate PTSD (CAP) Neuroimaging Core, which capitalizes on the extensive neuroimaging expertise available through the Center, Yale University, and the South Texas Research Organizational Network Guiding Studies on Trauma and Resilience (STRONG STAR) infrastructures. A main objective of the Neuroimaging Core is to develop new technology and methods allowing noninvasive investigation of human neuronal chemicals, brain structure, and function. Additionally, investigators will conduct an innovative project to explore mechanisms linking social and environmental stress to changes in brain structure and function commonly observed in stress-related disorders. Specifically, research will investigate the effects of glutamate transporter expression on stress response and resilience. Several other projects are also using advanced neuroimaging methodologies, in conjunction with the aforementioned pharmacotherapy trials. Work also continues on a biomarker-informed trial using recently developed 7 Tesla 1H-MRS (magnetic resonance spectroscopy) methods — combined with MRI and functional magnetic resonance imaging (fMRI) — to evaluate the psychopharmacologic effects of riluzole on PTSD symptoms, hippocampal morphometry, and anterior cingulate glutamate levels.

Positron emission tomography (PET) imaging techniques also are being utilized to integrate complex neurobiological models across several neurochemical systems and structures in order to provide a more comprehensive understanding of PTSD. This includes use of a newly developed paradigm to study the effects of ketamine on metabotropic glutamate receptor 5 (mGluR5) availability, as well as use of a new radioligand to examine the cholinergic system in PTSD and mood disorders. A project is evaluating kappa opioid receptor availability in an amygdala-ventral striatal-anterior cingulate cortical circuit and its relationship to a heterogeneous research domain criteria-based (RDoC-based) phenotypic expression of depression.

The Clinical Neurosciences Division also has a number of cognitive neuroscience projects using fMRI. Areas of exploration include: (1) the neural correlates of aversive learning, (2) contextual fear conditioning, (3) cognitive-affective interference within a model of inescapable stress, (4) neurocognitive mechanisms related to impaired decision-making, and (5) reconsolidation-extinction learning. Cognitive neuroscientists at the Division are also continuing to evaluate the effect of the cannabinoid system on extinction learning using delta-9-tetrahydrocannabinol (Delta9-THC) and a novel fatty acid amide hydrolase (FAAH) inhibitor. Work also continues on evaluating the efficacy of neurofeedback in conjunction with real-time fMRI for reducing PTSD symptomatology.

Molecular Neuroscience, Genetics, and Stress Vulnerability

The Clinical Neurosciences Division is the main research site for the VA National PTSD Brain Bank, which characterizes molecular and cellular pathophysiology underlying PTSD. Recent work in this area includes whole genome microarray

expression to examine abnormally expressed gene products, including serum and glucocorticoid-regulated kinase 1 (SGK1) and regulated in development and DNA damage responses 1 (REDD1), in PTSD postmortem brain samples as compared with matched controls. Results from this and other novel postmortem work 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 also may help to identify areas of risk vulnerability and novel diagnostic approaches to better inform treatment response. Several current projects in this area include: (1) the mediating effect of childhood trauma, cortical thinning, and increased negative outcomes following military combat; (2) the role of social and environmental stress on structural and functional brain changes observed in PTSD; (3) the role of ketamine in fear extinction; and (4) the use of glutamatergic-based pharmacotherapies to enhance the functioning and glutamate expression on stress response and resilience of GLT1, the glutamate transporter.

The Division continues its collaboration with the Psychiatric Genomics PTSD Consortium, and co-leads a VA PTSD GWAS project with colleagues from University of California, San Diego. The project has been highly productive in establishing linkage and association paradigms identifying chromosomal regions and genes influencing risk for anxiety disorders. Other areas of focus include the analysis of PTSD-associated DNA methylation changes, and the use of a new statistical modeling strategy to study sex and genetic variant interactions. This modeling approach is expected to detect more novel genetic variants via genome-wide scan and may explain the higher prevalence of PTSD in women than in men following trauma exposure. Additionally, data from 16,000 participants in the Army Study to Assess Risk and Resilience in Service members (Army STARRS) are being analyzed to identify behaviors, genetic and gene-environmental (GxE) risk predictors associated with morbidity and mortality.

Research on resilience and stress vulnerability continues in children and their families who have been exposed to high levels of stress and trauma. In collaboration with the Yale Child Study Center, researchers from the Division have collected and are analyzing surveys that were completed by children and their parents facing serious medical illness, from both national and international locations. Data collection is also ongoing in a study of child and family adjustment to parental combat deployment and soldier reintegration among active duty military families at Ft. Drum, New York.

Translational Epidemiology

The Clinical Neurosciences Division continues to examine the epidemiology of traumatic stress, with a major focus on identifying protective psychosocial factors that promote resilience. The National Health and Resilience in Veterans Study aims to characterize psychosocial, genetic, environmental, and GxE determinants of PTSD — and related health outcomes — in a nationally representative sample of Veterans, with a special emphasis on older Veterans. This work has led to publications in the areas of posttraumatic growth, correlates of successful aging and the national prevalence of lifetime and current PTSD, and a model of PTSD typologies among Veterans. Studies funded by the Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health also continue to examine a host of psychosocial, genetic, epigenetic, and neuroendocrine factors associated with the longitudinal trajectories of PTSD symptoms in a large cohort of first responders involved in to attacks on the World Trade Center.

Dissemination and Training Division

The Dissemination and Training Division (headquartered in Palo Alto, California), conducts research on (1) needs and preferences of providers and patients; (2) implementation and effectiveness of evidence-based assessments and treatments in VA and community settings; and (3) development and testing of novel assessments and treatments that exploit the potential unique benefits of technology-based delivery of services to improve access, quality, and outcomes in VA care.

Dissemination and Implementation Research

Three new studies funded in FY 2014 focus on providers. The first study concerns the use of Web technology in training clinicians in evidence-based interventions and testing variations in training procedures as they impact quality of skills in implementing the interventions. The second study is the development of a 28-site practitioner network across both the VA and the Department of Defense (DoD) that focuses on implementation of measurement-based care, specifically on the use

of symptom measures during the course of treatment to guide treatment planning. This study will evaluate the impact of different facilitation models in regard to success in uptake of measurement-based treatment across all sites. The third study is a randomized controlled trial (RCT) that focuses on increasing awareness of, receptivity to, and implementation of clinical practice guidelines for management of posttraumatic stress.

Barriers to Care and Patient Preferences

Several survey studies continue to address identification and engagement of Veterans in need of care. One is testing a brief screen for drug use among primary care patients with and without PTSD; another examines barriers to cannabis treatment among Veterans with PTSD. Along with collaborators at the Women's Health Sciences Division, staff at the Dissemination and Training Division completed research and evaluation work on screening and treatment of military sexual trauma. Continuing projects include studies on patient preferences for gender-specific mental health care and barriers to treatment engagement among male Veterans who experienced military sexual trauma.

Treatment Research

Randomized controlled trials are under way evaluating implementation strategies and patient outcomes in a variety of treatment settings. A large multisite clinical trial funded by the National Institutes of Health (NIH) is assessing the effectiveness of a flexibly delivered evidence-based PTSD treatment among civilian public sector women and will examine how variations in delivery affect patient outcomes. Two new trials that have obtained funding address substance use. One study will evaluate ACT in patients with comorbid PTSD and substance use problems; the other will evaluate the effectiveness of exercise in resolving cannabis dependence.

Evaluation of the national rollout of PE psychotherapy continued, with recent results confirming PE's effectiveness in a national sample of more than 1,800 Veterans. Investigators from the Dissemination and Training Division and the Minneapolis VA obtained funding for a study of organization- and team-level factors influencing the use of evidence-based PTSD psychotherapies in VA clinics.

Technology has been introduced to support and extend treatment. A new study is assessing the efficacy of group STAIR delivered via telemental health for female Veterans living in rural areas. A DoD-funded trial of telephone case management for Veterans with PTSD has been completed. Dissemination and Training Division staff also collaborated with colleagues at the Center's Pacific Islands Division on two clinical trials of psychotherapy delivered via video teleconferencing; the results of these trials have been recently published. Several pilot studies are assessing the potential of the *PTSD Coach* smart phone app in helping Veterans and civilians cope with PTSD. A pilot RCT study has been completed that identified benefits of introducing *PTSD Coach* among patients waiting for treatment, and has demonstrated reduction in PTSD symptoms as compared with those in waitlist-as-usual. The Division is also collaborating with investigators from the Minneapolis VA Medical Center on a study testing an online intervention to help National Guard families encourage their loved ones to seek mental health care.

Other studies address novel approaches to clinical problems in trauma survivors. Funding has been obtained to assess 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. NIH funding is supporting an investigation of online social networks for a highly stressed population (cancer survivors) to evaluate the types of social networking activities and level of engagement that may be related to positive mental and physical health outcomes. A DoD-funded study is testing whether teaching relaxation skills improves OEF/OIF/OND Veterans' driving behavior.

Evaluation Division

The Evaluation Division (headquartered in West Haven, Connecticut) supports the National Center's mission through a programmatic link 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 the VA. The monitoring includes both residential and outpatient specialty treatment programs, as well as PTSD treatment by trained providers not working within one of the PTSD specialty programs. The Evaluation Division via NEPEC also monitors the effort to improve psychotropic medication

prescribing practices at the Veterans Health Administration (VHA). Two of the measures in this initiative are the use of antipsychotics to treat PTSD and the use of benzodiazepines without an appropriate diagnosis or medical indication. It should be noted that although NEPEC is primarily engaged in evaluation research, it is also engaged in independent research projects related to the treatment of PTSD.

The Evaluation Division continues research on PTSD health service research, pain management, and the role of pain in the treatment of PTSD, as well as on sex differences in the health of returning Veterans. The Division is about to begin the third year of data collection on a National Institute of Mental Health (NIMH) Research Project Grant Program (R01), investigating the implementation of two evidence-based treatments, PE and CPT, in 38 Department of Veterans Affairs' residential treatment programs for PTSD. 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. Recruitment continued for the Survey of Returning Veterans (SERV) study, which examines sex differences in OEF/OIF/OND Veterans. Currently, approximately 550 participants have been recruited into the study, and follow-up rates remain at or above 90%. The Division also submitted a Health Services Research and Development (HSR&D) grant to extend the SERV study, in an attempt to better understand why symptomatic Veterans elect not to seek services to address their difficulties.

Over the next year the Evaluation Division will examine further the role of pain in specialized PTSD treatment and in the treatment of comorbid disorders; continue the SERV study, publishing results from the qualitative interviews of participants and continuing the establishment of a longitudinal cohort of returning Veterans; and embark on a study of impulse control issues among people in treatment for PTSD. In addition, the annual survey of all specialized PTSD programs that is conducted by NEPEC has been changed and expanded to include questions about the dissemination of evidence-based therapies within specialized programs. The national psychopharmacology initiative has just begun and will be continuing throughout the year. The Division is also working with OMHO, Mental Health Services (MHS), and the Executive Division to establish a technical assistance group that will respond to requests from specialized programs and staff in the field on policy, operations, handbook implementation, and the provision of evidence-based practices (EBPs).

Pacific Islands Division

The Pacific Islands Division (located in Honolulu, Hawaii) was created to advance PTSD work in the Pacific Rim, and to focus on improving access to care for active duty personnel and Veterans by: (1) improving understanding of cultural attitudes; and (2) using advanced technology, such as telemedicine, to reach out to Veterans unable to otherwise access adequate care.

Assessment

DoD funding has allowed for the development of several new assessment tools including one to assess neurocognitive and psychosocial functioning in Veterans with PTSD. A mobile version, used by frontline medical support personnel, enables them to more rapidly and accurately detect PTSD and concussion in Servicemembers to help facilitate their access to appropriate treatment as quickly as possible. Results show excellent reliability and validity for these instruments. The Pacific Islands Division is also part of a DoD-sponsored team that developed and tested an assessment-guided intervention app. Delivered within the app are both subjective and psychophysiological assessments that trigger relevant psychoeducational skill-based interventions for use with combat Veterans with PTSD.

Treatment Research

Investigators recently completed trials of evidence-based PTSD treatments delivered via videoconferencing: (1) CPT to rural Community-Based Outpatient Clinics (CBOCs), (2) CPT for female Veterans, (3) polytrauma treatment via Home-Based Telehealth by a team of specialists to Veterans who have difficulty leaving their homes for treatment, and (4) couples therapy when one member of the couple is a rural Veteran with PTSD. A recently funded study examines the amount and location of PTSD treatment among Veterans based on presence or absence of a comorbid substance use disorder. In addition, a qualitative (focus group) project examined the interface of individual, family, and community factors associated with PTSD service utilization among rural Veterans. Lastly, a data repository of RCTs that used evidence-based treatment for Veterans with PTSD is being assembled to foster research to advance understanding into factors influencing PTSD treatment.

Other projects emphasize advanced technology to reach rural Veterans with PTSD who do not have easy access to specialized care for their PTSD. As an example, an anger management app, developed in collaboration with the Behavioral Sciences Division, was tested on a pilot sample.

Specific Populations

A completed survey study of partners of Veterans with PTSD yielded evidence of knowledge gaps; identified opportunities for education and support that could be targeted to spouses and families; and provided substantial qualitative data indicating both positive and negative impacts on spouses' (partners') emotional, physical, and social well-being. Several ongoing studies examine ethnic minority populations with regard to prevalence of PTSD and the corresponding functional status, stigma, access to care for Veterans with PTSD, and the role of spousal support; additionally, the studies identify unique risk and resilience correlates of PTSD in ethnoracially diverse Veterans.

Women's Health Sciences Division

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

Biomarkers

Work at the Division includes studies aimed at elucidating basic biological processes underlying PTSD including a recently completed VA-funded study of sex hormones and derivatives associated with increased fear conditioning across the menstrual cycle in PTSD; a study of GABAergic neuroprotective steroids in men and in women across the menstrual cycle; and a series of NIMH-funded studies of the gene-environment interplay in the comorbidity of PTSD and eating disorders.

Treatment Research

Division investigators are also focused on developing and testing psychopharmacological interventions for PTSD, with several recently completed projects that include a DoD-funded double-blind, randomized, placebo-controlled trial of ganaxolone; and a study, co-funded by the Center for Integration of Medicine and Innovative Technology (CIMIT) and the DoD, investigating event-related potentials as a predictor of selective serotonin reuptake inhibitors (SSRI) response in individuals with PTSD.

Several other intervention studies examine more efficient treatment formats for CPT. With funding from the DoD via the South Texas Research Organizational Network Guiding Studies on Trauma and Resilience (STRONG STAR) consortium, investigators are completing studies that examine the relative effectiveness of CPT delivered in a group versus individual format, in-office as compared with in-home, and via telehealth as compared with in-person. In addition, the Women's Health Sciences Division is investigating a variable-length CPT protocol to evaluate whether treatment benefits may be achieved in fewer sessions. Investigators are also examining strategies to more efficiently train clinicians in CPT and to monitor fidelity in routine care settings — including an ongoing NIMH-funded study focused on improving and sustaining the delivery of CPT among previously trained clinicians who treat Veterans with PTSD. Another VA-funded study examines the effect of tobacco use on recovery from PTSD during CPT treatment.

Other intervention studies focused on traumatized populations include a recently completed VA-funded examination of the efficacy of contingency management-supported tobacco cessation in Veterans with and without PTSD, and a newly VA-funded study that will apply a physical exercise intervention to elucidate the shared neurobiology of PTSD and chronic pain. An NIMH-funded intervention study is under way to examine the effectiveness and fit of a transdiagnostic treatment, the Unified Protocol, for trauma-exposed Veterans with co-occurring diagnoses. Additionally, an ongoing DoD-funded project examines a mindfulness-based training as a tool to assist Veterans coping with postdeployment intrusive thoughts.

Gender Differences

The Women's Health Sciences Division is continuing its research on the OEF/OIF/OND cohort, particularly in regard to the experiences of female Veterans. A large national survey of OEF/OIF Veterans that included the updated Deployment Risk

and Resilience Inventory-2 (DRRI-2) is now being used to investigate a wide range of research questions regarding the relationship between deployment experiences and postdeployment mental health.

The Division is also continuing a large, national survey of male and female returning OEF/OIF Veterans (with females oversampled) designed to examine gender differences in deployment experiences and postdeployment adjustment. Recent work with this sample has included investigations of predictors of suicidal ideation and associations between deployment stressors, PTSD, and nicotine use. Work with the OEF/OIF/OND cohort also includes a VA-funded examination of the effects of deployment stressors and associated mental health sequelae on occupational and family functioning over time in female Veterans compared with male Veterans.

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, a 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, with a particular focus on gender differences in the role of PTSD treatment as a moderator of these relationships.

Military Sexual Trauma and Partner Violence

Exposure to interpersonal violence is a key issue of study at the Women's Health Sciences Division. Research related to military sexual trauma (MST) includes a recent qualitative investigation aimed at identifying unique factors associated with sexual trauma that occur within a military context; and a newly funded investigation of Veterans' experiences with and preferences for the VHA's universal MST screening program. Intimate partner violence (IPV) among female Veterans is a growing area of focus. Researchers are examining best practices for IPV identification, assessment, treatment, and coordination of care within the VHA context. Focusing on interpersonal trauma more broadly, a recently initiated project will examine VHA primary care providers' experiences with and reactions to providing care to female Veterans with interpersonal trauma histories.