Defense and Veterans Brain Injury Center

2014 Annual Report

BEATING THE CHALLENGE

DVBIC
DEFENSE AND VETERANS BRAIN INJURY CENTER

The Defense and Veterans Brain Injury Center (DVBIC) mission is to serve active-duty military, their beneficiaries, and veterans with traumatic brain injury (TBI) through state-of-the-science clinical care, innovative clinical research initiatives and educational programs, and support for force health protection services.

DVBIC fulfills this mission through ongoing collaboration with the Department of Defense (DoD), military services, Department of Veterans Affairs (VA), civilian health partners, local communities, families and individuals with TBI.

"As we carry out our mission to serve active duty military, their beneficiaries, and veterans with traumatic brain injuries, we must never forget that everything we do is aimed at providing the very best care for those who serve us so bravely."

- Col. Sidney Hinds II, U.S. Army
DVBIC National Director

Cover photo: Randall Davis, 46, right, reaches the finish line of the Pikes Peak Challenge for the second time to raise awareness of traumatic brain injury (TBI). Davis, who as a teenager was accidentally shot twice in the head and told he could never enlist, recently completed 8 years as a U.S. Army Reservist. He said the 12-hour hike to Pikes Peak represents the long haul needed to overcome TBI. Army veteran Joseph Crum, carrying the American flag, is also a TBI survivor. Davis is carrying the Wounded Warrior Project® flag. (DoD endorsement of the Wounded Warrior Project® is neither expressed nor implied.) Photo courtesy of Randall Davis, USAR, 244th Engineer Combat Battalion.

Facing page: U.S. Navy photo by Chief Mass Communication Specialist Michael B. Watkins

TABLE OF CONTENTS

Letter from the National Director 4
Looking Forward 6
Acknowledging Our Stakeholders 7
2014 Achievements 9
Introduction: DVBIC — 22 Years of Service 10
Clinical Affairs 13
Research 17
Education 23
Network Site Reports 30
International Outreach 36
Resources 37
Publications, Books/Chapters & Presentations 41

LETTER FROM THE NATIONAL DIRECTOR

Col. Sidney Hinds II,
U.S. Army,
DVBIC National Director

Dear Colleagues,

I would first like to thank all of the traumatic brain injury (TBI) subject matter experts and those who support us in the TBI fight for all of your hard work and dedication.

Secondly, it has been one year since I was allowed to lead the phenomenal men and women of the Defense and Veterans Brain Injury Center (DVBIC). They have performed excellently in all manners of TBI research, clinical care, and education across the continuum of TBI care. This detailed report — or any report — is unable to fully chronicle the enormous effort and accomplishments that the staff at the DVBIC network sites and headquarters have attained in 2014. The DVBIC team continues to serve through partnership and collaborations with all elements of the Department of Defense (DoD), Veterans Affairs (VA), Public Health Service medical specialists and non-governmental TBI subject matter experts.

The most important event in 2014 for not only DVBIC, but also the Military Health System (MHS), has been the efforts of Health Affairs, Defense Health Agency (DHA), DoD, the services, the Uniformed Services University of the Health Sciences and the National Intrepid Center of Excellence (NICoE) Institute to forge a new era in TBI care: the creation of the TBI Pathway of Care and the realignment of the NICoE Institute under Walter Reed National Military Medical Center. TBI subject matter experts toiled for six months through the DHA governance approval process before Assistant Secretary of Defense for Health Affairs Dr. Jonathan Woodson signed the memorandum approving this strategic and ambitiously achievable document on Sept. 17, 2014. He gave DVBIC the great responsibility to be the manager of the TBI pathway of care.

DVBIC personnel continued to work on all aspects of TBI issues as they prepared for this new task in leading all elements of DoD. DVBIC continues to lead in research efforts. We not only are involved in our own research, clinical care, and education, but also participated in efforts that would shape the health system.

We are proud of our work and this year some of our accomplishments include:

- Release (June 2014) of a clinical recommendation on the Management of Sleep Disturbances Following Concussion/Mild Traumatic Brain Injury: This clinical recommendation presents the state of the science and best practice
- Hosting the September 2014 DVBIC TBI Global Synapse, a three-day live and virtual educational seminar for 1,200 DoD and VA health care providers worldwide to educate them on the latest treatments for TBI
- Release in September of "A Parent's Guide to Returning Your Child to School After a Concussion." The timely guide provides details about easing children back into school during recovery from concussion and includes resources for military and government parents
- Development and release of the evidence-based suite of Progressive Return to Activity Following Acute Concussion/Mild Traumatic Brain Injury clinical and educational tools in January 2014. This clinical recommendation includes separate Guidance for the Primary Care Manager in Deployed and Non-Deployed Settings and Guidance for the Rehabilitation Provider in the Deployed and Non-Deployed Settings
- Receipt of DHP 6.7 funding for evaluating the effectiveness of the DVBIC Progressive Return to Activity clinical recommendation. The evaluation will provide evidence of the effectiveness of the clinical guidance
- Nomination as a finalist for the 7th Annual Major Jonathan Letterman Award for Medical Excellence. DVBIC was nominated for its leadership in care, research, and education efforts that have improved traumatic brain injury patient outcomes
- Hosting of 10 webinars on clinical and technology intervention topics related to TBI assessment and treatment
- First quarterly TBI Grand Rounds that began in September in collaboration with the VA. Grand Rounds provide an opportunity for health care providers to discuss TBI and best practices in treatment and care
- Research into long-term effects following TBI, including the 15-year longitudinal study and partnerships with the NFL and NCAA Grand Challenge; completion of the Study of Cognitive Rehabilitation Effectiveness, known as SCORE; and the Head to Head study of test-retest reliability of four computerized neurocognitive assessment tools, known as NCATs, in a military sample
- Collaboration with the VA to develop Improved understanding of Medical And Psychological needs (I-MAP), improved understanding of medical and psychological needs. This activity will inform clinical programming in the chronic stages of recovery and examine long-term healthcare needs and the impact on the trajectory of disability in the first five years after injury
- Health Executive Council (HEC) partnership with the VA for Health Affairs-level TBI issues and objectives as part of the HEC TBI sub working group
- As always, providing daily care to patients in conjunction with our 16 MTF and VA TBI sites

As we strive for an even better collaborative and productive 2015, I want us to remember those we serve. They are at the heart of everything we do.

With my humblest thanks and deepest respect,

Col. Sidney Hinds II, U.S. Army
National Director, DVBIC

Col. Sidney Hinds became DVBIC's fifth national director on July 1, 2013. Previously, he was the deputy director of the Armed Forces Radiobiology Research Institute for Military Medical Operations; the in-theater neurologist in Afghanistan, and chief of Nuclear Medicine Services at Walter Reed National Military Medical Center. He was the nuclear medicine integration chief for the Base Realignment and Closure process that combined the former Walter Reed Army Medical Center and National Naval Medical Center.

As national director, Col. Hinds oversees all aspects of the organization's mission, which is to serve active-duty military, their beneficiaries, and veterans with traumatic brain injury (TBI) through state-of-the-science clinical care, innovative clinical research initiatives and educational programs, and support for force health protection services..

Col. Hinds, who is board certified in neurology and nuclear medicine, leads DVBIC with integrated multidisciplinary approaches to care.

LOOKING FORWARD

"DVBIC must be nimble, able to stand up to help lead TBI care in the next conflict. We must indoctrinate our programs with knowledge learned from the past 14 years in conflict to be prepared for future conflicts and continue to work through the international community, such as NATO, to help solidify standardized approaches to screening and evaluation of TBI. We can advance the field rapidly due to all the research and attention afforded to TBI. We owe our service members nothing less."

Ms. Katherine Helmick, DVBIC Deputy Director

Katherine ("Kathy") M. Helmick, M.S., CRNP, ANP-BC, CNRN, DVBIC Deputy Director

Ms. Helmick is the deputy director for DVBIC. She brings considerable leadership, clinical, educational and research experience in the field of neuroscience to include more than 100 regional, national and international presentations and more than 15 peer-reviewed publications.

Ms. Helmick holds bachelor's and master's degrees in nursing from Virginia Commonwealth University, as well as a Bachelor of Science in family and child development from Virginia Tech University. She has earned the following certifications: Adult Nurse Practitioner (ANP) through the American Nurses Credentialing Center and Neuroscience Registered Nurse (CNRN) through the American Board of Neuroscience Nursing.

DVBIC in the News

- LCDR Cathleen Shields announces new TBI recommendations for making a smooth transition to routine activities (https://www.dvidshub.net/video/embed/320962) – TPC News (February 5, 2014)
- Kathy Helmick and Dr. Therese West, Defense and Veterans Brain Injury Center (http://federalnewsradio.com/federal-drive/2014/07/kathy-helmick-and-dr-therese-west-defense-and-veterans-brain-injury-center/) – Federal News Radio (July 3, 2014)
- DVBIC subject matter experts featured in Mindfulness-Based Approaches to Traumatic Brain Injuries (http://www.socialworktoday.com/archive/111714p18.shtml) – Social Work Today (November/December 2014)

ACKNOWLEDGING OUR STAKEHOLDERS

A Department of Defense-funded collaboration with the Department of Veterans Affairs, DVBIC supports 16 care and treatment sites nationwide; conducts clinical research; educates service members, medical personnel and caregivers; and consolidates and reports all DoD TBI-related incidence and prevalence data.

DVBIC Sites

- Boston, Massachussets
- Camp Pendleton, California
- Carl R. Darnell Army Medical Center, Fort Hood, Texas
- Evans Army Community Hospital, Fort Carson, Colorado
- Intrepid Spirit Concussion Recovery Center, Naval Hospital Camp Lejeune, North Carolina
- Intrepid Spirit Fort Belvoir Community Hospital, Fort Belvoir, Virginia
- Joint Base Elmendorf-Richardson, Anchorage, Alaska
- Landstuhl Regional Medical Center, Landstuhl, Germany
- Naval Medical Center San Diego, California
- San Antonio Military Medical Center, Texas
- Walter Reed National Military Medical Center, Bethesda, Maryland
- Womack Army Medical Center, Fort Bragg, North Carolina
- Hunter Holmes McGuire Veterans Affairs Medical Center, Richmond, Virginia
- James A. Haley Veterans Hospital, Tampa, Florida
- Minneapolis Veterans Affairs Medical Center, Minneapolis, Minnesota
- Veterans Affairs Palo Alto Health Care System, Palo Alto, California

DVBIC Partnerships

DVBIC Federal Partners

- Armed Forces Health Surveillance Center (AFHSC)
- QUAD Service (Army, Navy, Air Force and Marine Corps TBI Program Directors)
- U.S. Coast Guard
- National Intrepid Center of Excellence (NICoE) Institute
- Joint Program Committees 5 (Military Operational Medicine Research Program), 6 (Combat Casualty Care Research Program) & 8 (Clinical and Rehabilitative Medicine Research Program)
- Chronic Effects of Neurotrauma Consortium
- National Institute on Disability, Independent Living, and Rehabilitation Research

DVBIC Federal Partners (continued)

- TBI Model Systems Program
- The Centers for Disease Control and Prevention (CDC)
- National Institute of Neurological Disorders and Stroke
- Centers of Excellence Research Directorates, Office of the Assistant Secretary of Defense for Research & Engineering
- U.S. Army Aeromedical Research Laboratory, Fort Rucker, Alabama
- Federal Recovery Care Coordinators
- Uniformed Services University of the Health Sciences (USUHS)
- MacDill Air Force Base, Tampa, Florida
- Center for Neuroscience and Regenerative Medicine (CNRM)

DVBIC External Partners

Lt. Gen. Patricia D. Horoho
Surgeon General,
U.S. Army

National Football League (NFL)

… Along with the NFL, the Army collaborates with multiple organizations, both within and external to the federal government. We continue collaboration with our sister services, the Defense Centers of Excellence (DCoE) for Psychological Health and TBI, and particularly the Defense and Veterans Brain Injury Center (DVBIC). We are engaged in prevention and safety messaging, patient and Family education, and clinical research efforts. … we are working closely with the National Football League to increase overall awareness of brain injuries in Soldiers and NFL players and to highlight the importance of, and reduce the stigma, associated with seeking care.

- Lt. Gen. Patricia D. Horoho, Army Surgeon General
Excerpt from Army and NFL Partner to Prevent Brain Injuries
Published January 2014 in Army Medicine Mercury, Volume 41, No. 4
U.S. Army Medical Command worldwide publication
See video: http://dvidshub.net/r/52rvqe

- One Mind
- National Collegiate Athletic Association
- Transforming Research and Clinical Knowledge in TBI
- WETA, brainline.org
- University of Pittsburgh Graduate School of Public Health for Student Preceptorship

"We listen to our stakeholders to come up with clinical recommendations and educational tools to give our DoD and VA medical beneficiaries the most current diagnostics and best treatments available. Our research and clinical recommendations not only benefit the military health service system, but also contribute to the civilian medical profession's body of knowledge."

- Col. Sidney Hinds II, U.S. Army
DVBIC National Director

★ 2014 Achievements ★

Pathway of Care Management Designation

The assistant secretary of defense for health affairs designated DVBIC the MHS TBI Pathway of Care manager for clinical, research, education and training activities through his memorandum, "The Military Health System Traumatic Brain Injury Pathway of Care and Alignment of the National Intrepid Center of Excellence Within That Pathway," dated Sept. 17, 2014. DVBIC drafted, and began staffing, a TBI Pathway of Care Advisory Committee Charter with the services and the VA.

A Head for the Future

DVBIC has launched a new multi-year TBI awareness, education and prevention initiative called "A Head for the Future." The goals of this new campaign are to make service members, their families and veterans more aware of the signs and symptoms of TBI, encourage them to seek medical attention when needed and take proper safety precautions to prevent TBIs. The campaign's main portal of information is a website, dvbic.dcoe.mil/aheadforthefuture.

Letterman Award

DVBIC was a finalist for the 7th Annual Major Jonathan Letterman Award for Medical Excellence, nominated for its leadership in care, research, and education efforts that have improved traumatic brain injury patient outcomes. The National Museum of Civil War Medicine in Frederick, Maryland, presents the annual Letterman Award to one individual and one organization that have led innovative efforts in improving outcomes for patients with catastrophic injuries or developing new medical technologies to assist Armed Forces members or severely wounded civilians.

2014 Annual Report Defense and Veterans Brain Injury Center

INTRODUCTION

DVBIC — 22 Years of Service

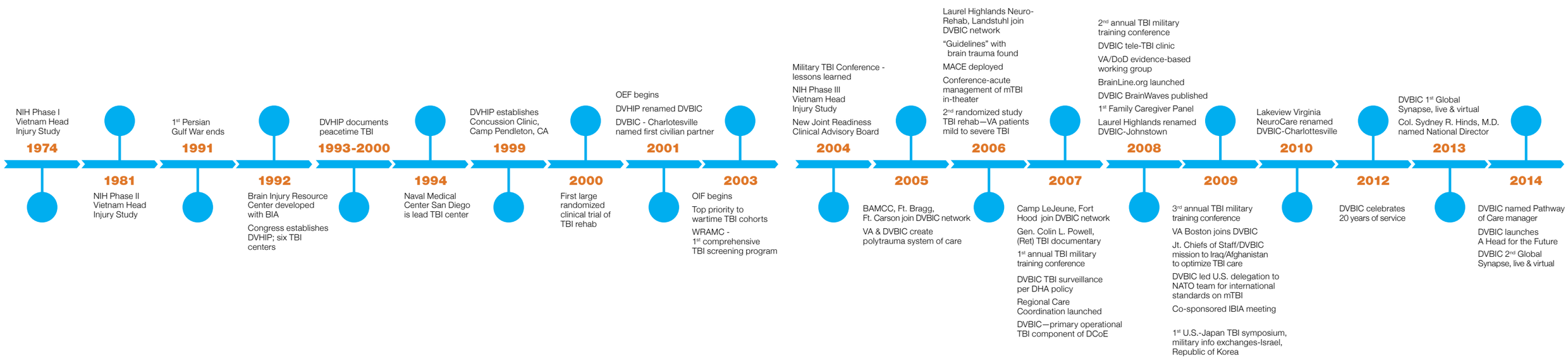
The Defense and Veterans Brain Injury Center (DVBIC) was congressionally mandated in 1991 and opened its doors in 1992, largely in response to the first Persian Gulf War, under the name Defense and Veterans Head Injury Program. At that time, its goal was to integrate specialized traumatic brain injury (TBI) care, research and education across military and veteran medical care systems.

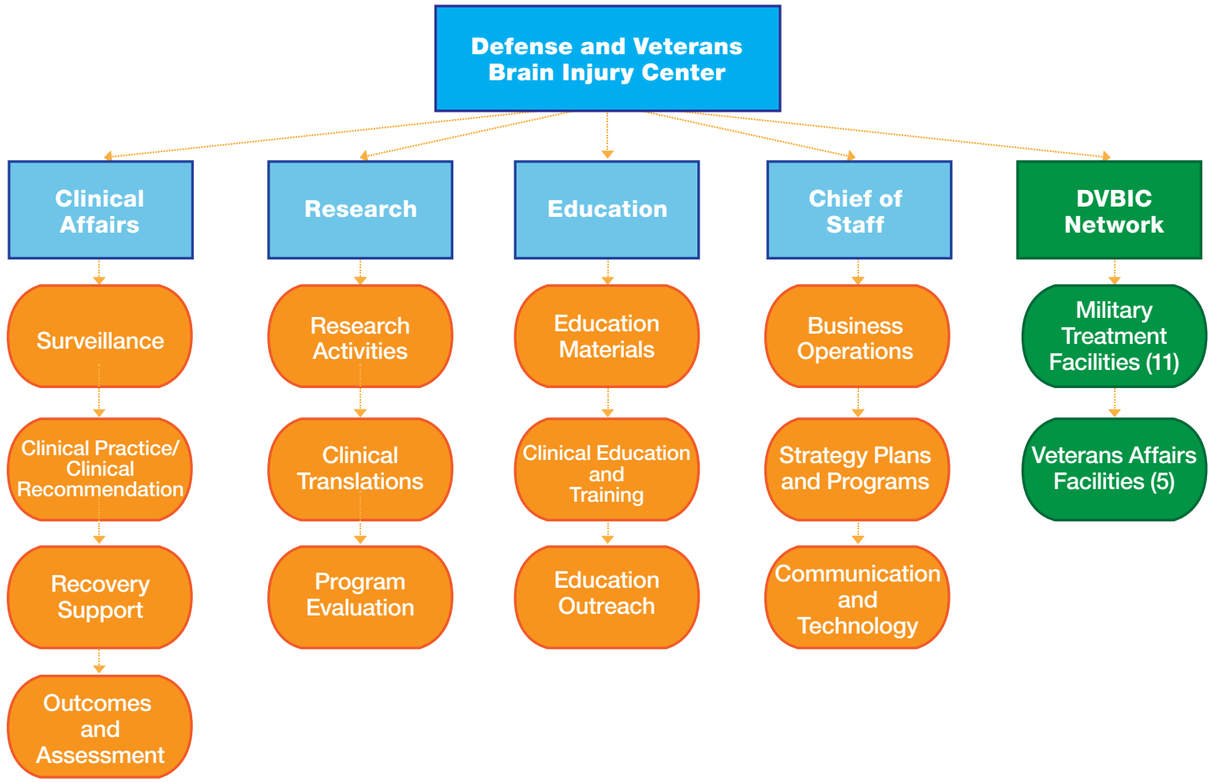
Twenty-two years later, DVBIC is part of the U.S. Military Health System and the TBI operational component of the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE). Headquartered in Silver Spring, Maryland, DVBIC has a network of 16 sites, operating out of 11 military treatment facilities and five Department of Veterans Affairs (VA) medical centers. The specific activities vary at each site and include research; helping service members, veterans and their families find and use the right services for their needs; providing education in military and civilian settings; providing direct care to service members; and assessing TBI injury data.

DVBIC assists in screening and briefing troops heading into theater, and assisting the Defense Health Agency by performing provider training at military treatment facilities, gathering data mandated by Congress and DoD, and overseeing research programs. The center treats service members and veterans with mild, moderate or severe TBI, and helps them from the moment of injury to their return to duty or reintegration into the community.

The Defense Department has further solidified DVBIC's role by naming it the office of responsibility for these tasks:

- **Pathway of Care**. Dr. Jonathan Woodson, Assistant Secretary of Defense for Health Affairs, assigned DVBIC to manage the MHS TBI Pathway of Care for clinical, research, education, and training activities
- **Creation and maintenance of a TBI surveillance database**. Creation and maintenance of the database to describe the scope of the TBI issue
- **Working group**. Chair of the chartered Neurocognitive Assessment Implementation Working Group
- **Design and execution of a 15-year longitudinal study**. Design and execution of the study of the effects of TBI in Operations Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) service members and their families
- **Design and completion of independent head-to-head study**. Design and completion of independent study to evaluate the reliability and validity of computerized neurocognitive assessment tools
- **Design and execution of a study of cognitive rehabilitation effectiveness (SCORE).** Study of mild TBI symptoms lasting more than three months





DVBIC, which has three divisions in addition to the office of the chief of staff, also develops, provides and distributes educational materials for military and civilian providers, families, service members and veterans.

In 2014, DVBIC divisions accomplished the following state-of-the-science events:

- Clinical Affairs produced three new clinical recommendations
- Research conducted 60 active protocols and studies
- Education promoted 45 TBI-related products and product suites, plus 10 webinars

CLINICAL AFFAIRS

DVBIC's Clinical Affairs Division provides clinical guidance and tools built on state-of-the-science TBI knowledge to clinical care providers, and clinical support to service members, veterans, and their families. The division has four offices: Surveillance, Clinical Practice/Clinical Recommendations, Recovery Support Program, and Outcomes and Assessments. In achieving its mission, the division works in partnership with the Service TBI program directors, the National Intrepid Center of Excellence (NICoE), the VA, and other federal agencies, civilian partnerships, academic institutions and private industry.

Mission Essential Components

- Identification & Sharing Best Practices
- Clinical Guidelines, Recommendations
- Care & Consultation
- TBI Surveillance
- Recovery Support Program
- TBI Health Outcomes
- Program Evaluation and Quality Process Improvement

Together with its partners, DVBIC's Clinical Affairs Division develops and supports the implementation of clinical standards to maximize recovery and functioning, creates standardized approaches to assessments, and collects, analyzes, and disseminates TBI-related population health data to better define the scope of the TBI population and guide research and policy. They also provide support to service members and veterans who have sustained a TBI through clinical care resources at military treatment facilities and through field-based recovery support specialists.

In 2014, the Clinical Affairs Division continued to advance the state of TBI care. During the year, the division released several important new clinical recommendations, expanded data sources and capabilities to improve surveillance, and selected instruments to capture mild TBI outcomes throughout the Military Health System. The division also continued to provide vital clinical care and recovery support around the world.

Read articles about TBI and the military at: dvbic.dcoe.mil/about/tbi-military

News Beat

White House stresses ongoing commitment to preventing and treating TBI
https://www.dvidshub.net/video/embed/340062

★ 2014 Achievements ★

New Clinical Recommendations and Resources

- Assessment and Management of Dizziness Associated with mTBI Clinical Recommendation
- Assessment and Management of Visual Dysfunction Associated with mTBI Clinical Recommendation
- HEADS — Protect Your Strongest Weapon
- Neuroimaging following mTBI in the Non-Deployed Setting Clinical Recommendation

Defining TBI Outcomes

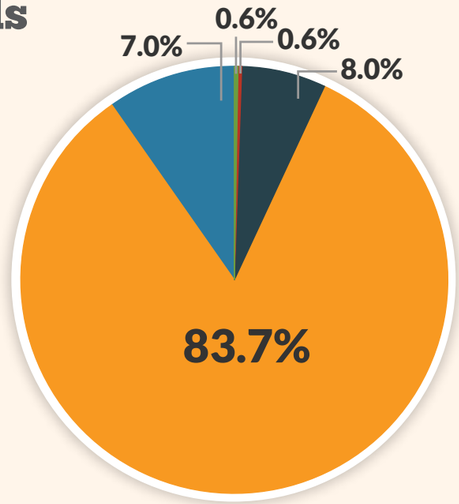
- Drafted the concussion/mTBI Health Care Outcome Policy, which establishes guidelines for the administration of the Neurobehavioral Symptom Inventory (NSI) and the Patients' Global Impression of Change (PGIC) with the goal of standardizing mTBI assessment in the MHS
- Developed the Concussion Healthcare Outcome Standardization Plan. Data from the two measures would be used for evaluating mTBI outcomes
- Wrote and posted information papers on the NSI and PGIC measures on the DVBIC website for reference purposes dvbic.dcoe.mil/information-papers
- Collaborated with the developer for the Armed Forces Health Longitudinal Technology Application (AHLTA) electronic health record/ Alternate Input Method (AIM) form to be used in the primary care medical home for mTBI concussion care
- Initiated development of standardized data fields to be incorporated into the AHLTA/AIM form with the ability to collect outcomes data for analysis
- Assisted in development of a questionnaire template for AHLTA to capture the NSI and PGIC scores; this template will be accessible for MHS providers
- Developed standard operating procedures to establish the processes of data collection/analyses and site visits

2014 Annual Report
Defense and Veterans Brain Injury Center

DoD Numbers for Traumatic Brain Injury
Worldwide – Totals

2014

Penetrating	157
Severe	146
Moderate	2,010
Mild	20,972
Not Classifiable	1,759
Total - All Severities	**25,044**



Source: Defense Medical Surveillance System (DMSS), Theater Medical Data Store (TMDS) provided by the Armed Forces Health Surveillance Center (AFHSC)

Prepared by the Defense and Veterans Brain Injury Center (DVBIC)

Percentages do not add up to 100% due to rounding

2014, as of May 15, 2015

TBI Surveillance: Defining the Scope of the TBI Issue

Quarterly TBI Surveillance Reports

DVBIC is the Defense Department office of responsibility for tracking TBI data in the U.S. military. The DVBIC website provides worldwide numbers (updated quarterly) representing active duty medical diagnoses since 2000 of TBIs that occurred anywhere U.S. forces are located, listed in total and identified by service and injury severity.

In calendar year 2014, 25,044 service members were newly diagnosed with TBI. Since 2000, the total number of service members diagnosed with a TBI had risen to 320,344; 82.4% of these were classified as mild TBI, or concussion. In 2014, DVBIC:

- Broadened data source partnerships with Joint Trauma Analysis and Prevention of Injury in Combat and Armed Forces Health Surveillance Center
- Expanded surveillance reporting capabilities with internal and external stakeholders
- Informed internal and external stakeholders of trends in injury rates and care utilization

Quarterly Event Monitoring Summaries

DVBIC analyzed reporting variables and provided an historical comparison of previous data in quarterly reports from the Blast Exposure Concussion Incident Report database.

Recovery Support Specialists

DVBIC's TBI Recovery Support Program (RSP), formerly known as the Recovery Care Coordination Program, expanded its focus and outreach during 2014.

Based on recommendations from external and internal reviews, the following measures were adopted:

- Expansion of the RSP service mandate to include coordinating care for TBI and co-occurring psychological health conditions
- Expansion of client services to include caregivers, and family members of service members and veterans impacted by TBI
- Development and expansion of marketing of program resources to increase the referral network and expand knowledge of and client access to available services regionally and nationally

The program adapted and now uses a customized version of the Wounded Ill and Injured Registry database to better track and facilitate coordination of care as well as improved long-term assessment of client outcomes.

The RSP published a brochure and a fact sheet that explain the purpose of the program, who is eligible, and where to find a location in the recovery support specialist network. The brochure and fact sheet are free and downloadable from dvbic.dcoe.mil/tbi-recovery-support-program.

Branch Audience* Breakdown Totals

January — December 2014	
Branch	**Audience**
ARMY	41,035
AIR FORCE	3,166
NAVY	12,504
USMC	9,223
COAST GUARD	12
ALL SERVICES	121,836
COMMUNITY	1,018
NAVY/USMC - Camp Lejeune**	32,396

**Individuals who attended education, outreach and training events in 2014.*

***This category has been created due to Camp Lejeune's large volume of NAVY/USMC mixed audience events.*

RESEARCH

U.S. Navy photo by MC2 Kristopher Wilson

DVBIC's Research Division advances the scientific understanding of traumatic brain injury and its treatment along the continuum of care through a multi-center network of military treatment facilities and Veterans Affairs medical centers. The resulting scientific knowledge drives approaches to clinical diagnosis and care that improve outcomes for those impacted by TBI. The division conducts, guides and supports research across the DVBIC network through three offices: Research Activities, Clinical Translation, and Program Improvement and Evaluation. DVBIC's research portfolio spans a broad range, from congressionally mandated longitudinal population studies to investigator-initiated clinical research.

Mission Essential Components

- Clinical Investigations
- Translation of Research
- Congressionally Mandated Studies
- Epidemiological Research
- Research Analysis
- Program Improvement & Evaluation

In 2014, DVBIC's Research Division has 60 active TBI research studies and projects to synthesize current level of evidence for high priority focus areas related to TBI. Through innovative clinical research, DVBIC is able to provide evidence-based knowledge to improve treatment and outcomes for service members and veterans who have sustained a TBI. These targeted efforts help patients, health care providers and policy makers take action and make informed decisions. Examples of these research efforts follow.

Roxana Delgado, left, wife of retired Army Sgt. 1st Class Victor Medina, right, answers questions from nursing students about traumatic brain injuries at El Paso Community College, Northwest Campus, March 6, 2014. Medina was injured when an explosively formed projectile struck his vehicle in Iraq, 2009. Medina spent some time in rehabilitation at the National Intrepid Center of Excellence at Walter Reed National Military Medical Center in Maryland. Delgado and Medina have been very active in empowering wounded Soldiers and their care givers. Medina, who received his master/s degree in rehabilitation counseling, is developing software to help people reach their greatest abilities. U.S. Army photo by Staff Sgt. Candice Harrison

In April 2014, DVBIC created a Program Improvement and Evaluation (PIE) Office to assist in implementing evaluation and process improvement processes to enhance DVBIC programs, products and services. The office plans to accomplish this by building and enhancing DVBIC staff's knowledge and skills of program improvement and evaluation practices (capacity building), thereby positioning staff to demonstrate the effectiveness of their workflow designs, projects and programs. The office established work procedures and began educating DVBIC staff on program evaluation and process improvement practices and how to incorporate these processes into products and services.

In 2014, the office assisted DVBIC research, clinical affairs and education divisions and the chief of staff office in developing performance metrics for four projects. The divisions and chief of staff will collect and analyze data to ascertain whether the projects and processes are functioning as expected.

The office plans to pilot-test its program evaluation processes in early 2015.

★ 2014 Achievements ★

15-year Longitudinal Study

Walter Reed National Military Medical Center leads this long-term longitudinal study on TBI in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) service members and veterans, as well as the impact on their families. Begun in 2010, the study, conducted in collaboration with the Center for Neuroscience and Regenerative Medicine, performs the following:

- Develops a data repository of clinical and health data and bio specimens collected from injured and non-injured service members
- Documents long-term outcomes over 15 years to improve understanding of TBI in a military cohort
- Investigates the effect of caring for a service member with TBI on the caregiver's health and well-being, and the effect of the TBI on the health and behavior of service members' children
- Examines the health care needs and use of services to facilitate recovery following TBI

In 2014, the 15-year study

- Expanded recruitment to the Naval Medical Center at San Diego and Camp Pendleton, both in California
- Coordinated recruitment efforts with the VA longitudinal study (part of the Chronic Effects of Neurotrauma Consortium)
- Completed focus groups with caregivers to inform development of a Quality of Life measure specifically for TBI caregivers

Study of Cognitive Rehabilitation Effectiveness in Mild TBI (SCORE)

The SCORE study, completed in 2014 at Brooke Army Medical Center in San Antonio, Texas, evaluates the effectiveness of integrated cognitive rehabilitation treatments, including computer treatments geared to improve brain fitness, in veterans of OEF and OIF with a history of mild TBI symptoms lasting 3 to 24 months. Study goal was to determine the most effective therapies associated with better treatment outcomes for chronic mild TBI symptoms, on whom and why. Following an interim report to Congress including description of the study's preliminary findings, study leaders will disseminate results at scientific conferences and in publications in 2015 and beyond.

Head to Head

This study, which was conducted at Fort Bragg, North Carolina, compares four computer-based cognitive tests to identify service members who are at risk for brain injury-related problems

- **Tests**. Measure memory, attention, reaction time and other cognitive skills and are usually given to athletes after they've had a head injury
- **Results**. Determine whether any test is better suited than the others for assessing service members who sustain a TBI in the military environment
- **Enrollment and data collection**. Completed in 2014
- **Study findings**. After informing Congress, results will be disseminated in 2015 through scientific conferences and publications that evaluate the reliability and validity of computerized neurocognitive assessment tools

Evaluation of the DVBIC Progressive Return to Activity Following Acute Concussion/Mild TBI Clinical Recommendation Tool

- **Guidance for recovery after mild TBI**. TBI program managers of the military services requested development of the clinical recommendation to provide standardized guidance for returning service members to pre-injury activity levels after mild TBI
- **Funding**. DVBIC was awarded DHP 6.7 funding for evaluating the effectiveness of the clinical recommendation

  Supports the evidenced-based suite of clinical and educational tools developed and released in early 2014

  Drives enhancements and improvements in the dissemination, implementation, and utility of this product in the Military Healthcare System (MHS)
- **Modifications**. As informed by the results of this work, will be implemented across the MHS through coordination with military services TBI program managers, the DVBIC network, Recovery Support Program and regional education coordinators

Development and Dissemination of Information Papers on the Use of Hyperbaric Oxygen for Mild TBI

In 2014, DVBIC developed information papers to provide an overview of the current level of evidence for the effectiveness of hyperbaric oxygen (HBO2) therapy for the treatment of persistent post-concussion symptoms. By making the information papers available to military service partners and the DVBIC network, DoD's message on the topic is unified.

While some studies demonstrate HBO2 effectiveness for reducing symptoms months to years after mild TBI, results of those studies must be interpreted with caution, as lack of subject randomization, treatment group blinding, and control groups weakened the scientific rigor and potentially induced experimenter and selection bias.

Recent randomized controlled trials funded by DoD provide no evidence for efficacy of HBO2 intervention compared to the sham intervention for improving symptoms in mild TBI patients, either immediately after intervention, or three months post-intervention.

Translation Potential of Completed Studies Funded in 2007 from the U.S. Army Medical Research and Materiel Command's TBI Research Portfolio

In 2014, DVBIC partnered with the Joint Program Committee-6 (JPC-6) to provide "translation potential" information on completed TBI studies funded by DoD/JPC-6 in 2007. This information can be shared with the DVBIC clinical and education divisions during the development of new or revised DVBIC products.

The most up-to-date DoD research findings are used during the development of state-of-the-science clinical and education products. Also, the translation potential can inform the research that should be done next to advance the state of the science to impact clinical practice.

Department of Defense photo by
U.S. Air Force Tech. Sgt. Michael R. Holzworth

EDUCATION

DVBIC's Education Division develops and delivers TBI education programs built around state-of-the-science knowledge. The division has three offices: Education Materials, Clinical Education and Training, and Education Outreach. These offices provide members of the military, veterans, and their families, supporters, and care providers with the knowledge they need to prevent or recover and reintegrate from TBIs. The division's multimedia education products deliver high-quality, clinically relevant education to clinicians and provide education about the means of prevention, causes, and care of TBI to the broader military community.

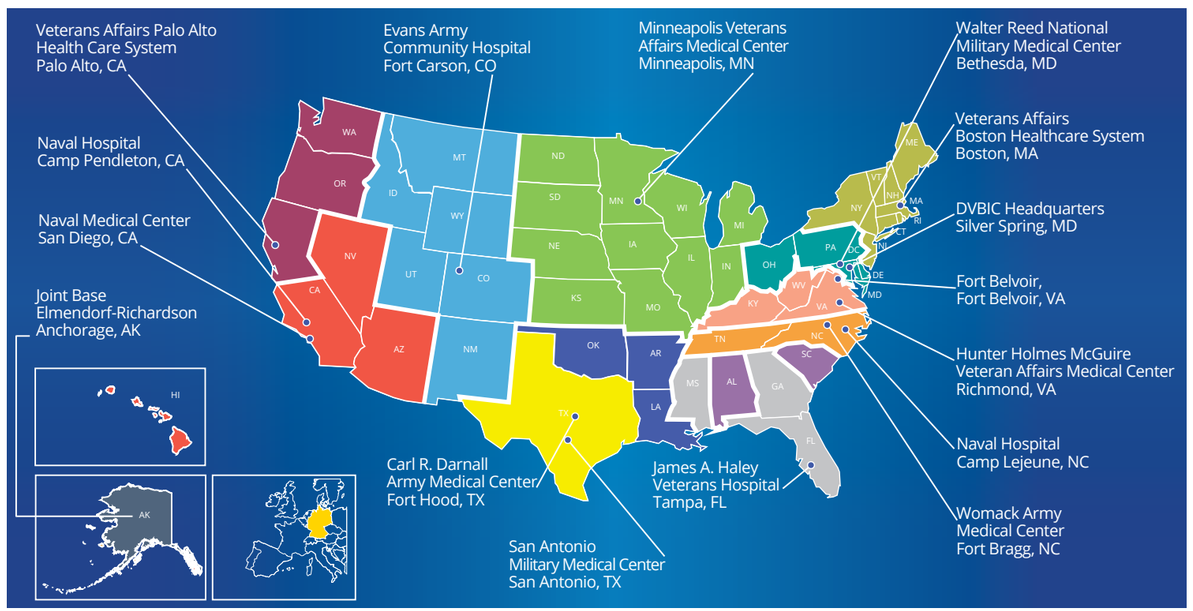
In 2014, the Education Division developed 45 TBI-related products and product suites and 10 webinars.

National Football League (NFL) Commissioner Roger Goodell delivers remarks during an event at the U.S. Military Academy at West Point, N.Y., launching an initiative between the Army and the NFL to work to raise awareness about traumatic brain injury Aug. 30, 2012. Goodell and U.S. Army Gen. Raymond T. Odierno, the chief of staff of the Army, jointly signed a letter formalizing the initiative during the event.
U.S. Army photo by Staff Sgt. Teddy Wade

Mission Essential Components

- Development of Educational Tools and Resources
- TBI Awareness and Training
- Product Distribution and Dissemination
- Family Caregiver Program
- Regional Education Coordination
- Outreach

DVBIC's network of regionally-based education coordinators provides education and conducts outreach to service members, veterans, and their families, supporters, and care providers around the world.



Michelle Spoo holds a photo of her late husband, James Spoo, and their dog, Diesel. James Spoo joined the Army in November 2001 and served as an explosives ordinance disposal technician, 702nd Explosive Ordinance Disposal detachment, 7th Combat Support Sustain Brigade at Joint Base Elmendorf-Richardson, Alaska, his second and final permanent assignment. He endured three TBIs in three deployments to Afghanistan. During rehabilitation, he joined the TBI class offered by the DVBIC regional educational coordinator, who said he was a living example of hope and inspired other students. He was progressing in his recovery through the hospital at JBER, but succumbed to a heart attack while walking Diesel on May 15, 2014. U.S. Air Force photo by Staff Sgt. Robert Barnett

★ 2014 Achievements ★

Provider Education Services

DVBIC Monthly Webinars

In order to promote the best possible care for service members and veterans, DVBIC offers online education for both civilian and military providers to learn about TBI. All are free of charge and some allow providers to obtain continuing education or continuing medical education credits.

DVBIC hosted 10 webinars in calendar year 2014, providing education to 12,586 participants and awarding 3,009 hours of continuing education credits to physicians and nurses.

Automated Neurological Assessment Metric Training

This training, known by the acronym ANAM, was mandated through Department of Defense Initiative (DoDI) 6490.13, Comprehensive Policy on Neurocognitive Assessments by the Military Services. Two training slide decks were developed and delivered to services in May 2014 through a joint working group of representatives from each of the services and DVBIC:

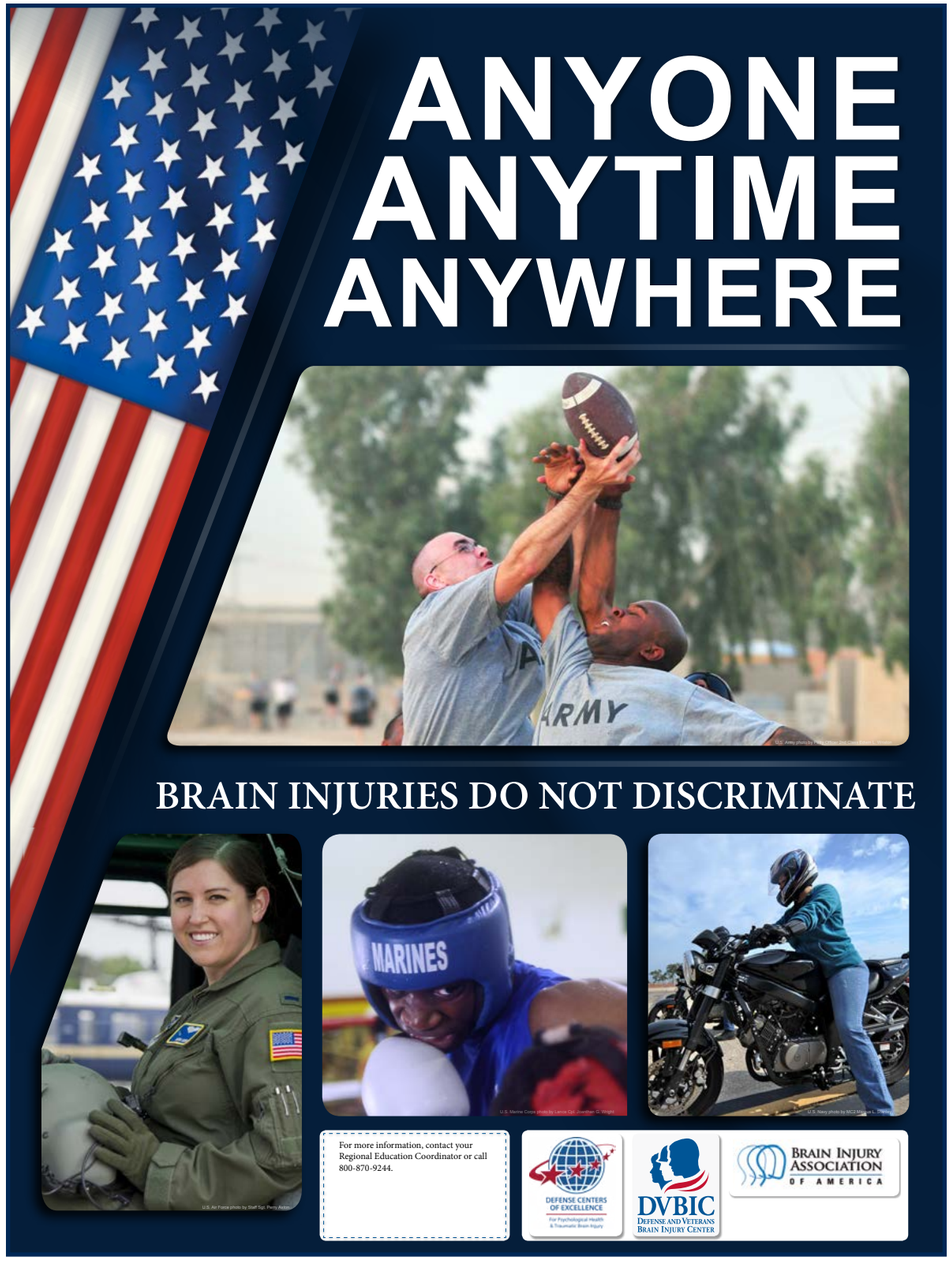
1. Deck of 27 slides, developed for the general medical officer or primary care provider
2. Deck of 146 slides, more in-depth training for psychology and neuropsychology specialists

2014 Brain Injury Awareness Month

March is Brain Injury Awareness Month. The 2014 theme, "Anyone, Anytime, Anywhere: Brain Injuries Do Not Discriminate," featured events that highlighted DoD's efforts to prevent TBI and provide care for active-duty military, their beneficiaries and veterans with TBI through state-of-the-art clinical care, research and education. DVBIC's network of regional education coordinators hosted more than 150 events nationwide. Congress designated March 12 as Brain Injury Awareness Day.

Events

- DVBIC's kick-off, Fort Belvoir Intrepid Spirit Center
- Resource fair in the Rayburn Building in Washington, D.C., to inform key audiences



DVBIC TBI Global Synapse

DVBIC hosted in September the 2nd Annual DVBIC TBI Global Synapse, which brought together more than 1,000 DoD and VA health care providers worldwide through a 2.5-day, live and online education event at DHA Headquarters in Falls Church, Virginia. Sessions addressed the following:

- Best practices in TBI assessment, diagnosis and treatment
- Innovative approaches to multidisciplinary care
- Management of comorbidities, including psychological health conditions
- Successful reintegration strategies
- Seven pre-recorded, on-demand sessions

Participants were eligible for up to 12.25 hours of continuing education credit if they attended the TBI Global Synapse in person and up to 8 hours if they viewed the pre-recorded, on-demand sessions. Audio recordings and slide presentations are available at dvbic.dcoe.mil/training.

Service Member, Veteran and Family Education Services

Progressive Return to Activity Following Acute Concussion/Mild TBI Education Product Suite

These new clinical recommendations — the first of their kind — offer primary care managers and rehabilitation providers with standardized guidance on how and when service members and veterans should return to activity following a concussion. In addition to the clinical recommendation released in January 2014, DVBIC provided clinical support tools, a patient education brochure to be distributed by primary care managers, and a patient education tear-off tablet for rehabilitation providers.

A Parent's Guide to Returning Your Child to School After a Concussion

DVBIC created and released this booklet that provides details for military and civilian parents about easing children back into school during recovery from a concussion. This booklet helps parents address common questions after their child has sustained a concussion, such as: How soon should my child return to school after a concussion? When will my child feel better? What can I do to help?

Concussion/Mild Traumatic Brain Injury and Posttraumatic Stress Disorder Fact Sheet

DVBIC launched the fact sheet in September 2014 to provide the definitions for concussion/mild traumatic brain injury and posttraumatic stress disorder, list overlapping symptoms and include guidance for the recovery process. Regional education coordinators report very positive feedback and that family members are requesting the fact sheet.

Management of Sleep Disturbances Following Concussion/Mild Traumatic Brain Injury Education Products Suite

The new clinical recommendation, clinical support tool and patient education fact sheet can assist in identifying and treating a sleep disturbance occurring in patients after a concussion. This suite of products, released in June 2014, assists health care providers in identifying a sleep problem and provides recommendations for treatment.

U.S. Army photo by Sgt. 1st Class Andy Yoshimura

NETWORK SITE ACTIVITIES

Camp Lejeune, North Carolina

DVBIC Camp Lejeune is the largest Marine Corps base on the East Coast and plays an important role in the Marine Corps' expeditionary abilities. The base actively maintains combat-ready units for deployment, including the II Marine Expeditionary Force, a Marine Air Ground Task Force of 47,000 Marines and Sailors. Several training schools are housed at Camp Lejeune, including Camp Geiger, the Marine Corps School of Infantry, East; and Camp Johnson, the Marine Corps Combat Service Support School. Camp Lejeune, with its various satellite camps, housing, training areas and New River Air Station is the largest concentration of marines and sailors in the world.

In 2014, Camp Lejeune opened the Intrepid Spirit Concussion Recovery Center, and DVBIC providers cared for over 2,700 marines and sailors. The regional education coordinator (REC) reached more than 4,000 service members, families, providers, veterans, and other stakeholders through TBI presentations, including a presentation to Carolina's Council on Military Education. The REC manned exhibit tables at events attended by 21,460 military families and instructed 11,380 marines at Automated Neurological Assessment Metric screenings. Additionally, the REC created a presentation called Noggin Knowledge and educated 1,575 grade school children. The recovery support specialist (RSS) carried one of the largest caseloads with over 100 patients and covered a catchment area over three states.

The biggest accomplishment for the year was developing the DVBIC research component and bringing aboard a clinical research director who worked with DVBIC headquarters and other hospitals and agencies to conduct research on a Repetitive Low-Level Blast Study, an MRI Study in partnership with the University of Pennsylvania, and a Biomarker Study with Georgetown University.

Fort Hood, Texas

DVBIC Fort Hood serves the continental United States' largest deploying base population. The program works in conjunction with the TBI Clinic in providing direct and indirect patient care to soldiers as well as providing education to active duty, National Guard, Reserve, family members and clinical staff. The site supports general DVBIC research in conjunction with San Antonio Military Medical Center.

In 2014, DVBIC staff increased to three full-time personnel: a regional education coordinator, recovery support specialist and a nurse practitioner assigned to augment the TBI Clinic. The REC continues to lead annual and pre-deployment concussion/mTBI training for troops at Fort Hood and engages in outreach to family members, veterans and civilian clinical practitioners who treat the service members. These education efforts reached 9,657 individuals this year.

Fort Carson, Colorado

DVBIC Fort Carson resides within the Evans Army Community Hospital's Warrior Recovery Center and Soldier Readiness Center. Fort Carson is a large Army post with continuing deployment cycles and is an ideal site for extending DVBIC's mission. DVBIC supports this site with two regional education coordinators, a recovery support specialist and a research team. The RECs were able to reach out to nearly 16,000 participants in educational presentations and events. The RSS provided invaluable resources and ongoing support to service members and veterans in transition.

DVBIC at Fort Carson provided clinical expertise, database and statistical support to quality improvement initiatives through the Outcome Measures Project. Research studies at Fort Carson, in collaboration with DVBIC headquarters and Fort Bragg, are being analyzed to report on deployment-related mTBI in soldiers returning from Operation Enduring Freedom/Operation Iraqi Freedom, and to look at posttraumatic stress disorder and TBI (in collaboration with the Denver VA Medical Center). In addition, these studies test new technologies such as Interactive Metronome and Global Z-Score Neurofeedback for possible benefit in cognitive impairment after TBI.

San Diego, California

DVBIC at Naval Medical Center San Diego (NMCSD) works collaboratively with the Office of Neurotrauma/NAVMED West and TBI Clinical Services at NMCSD to provide an array of clinical services, including TBI screening, evaluation and patient/family education, neuropsychological assessment, duty status determination and consultation services. DVBIC at NMCSD also conducts state-of-the-science research examining various aspects of TBI, such as mechanisms of injury from blasts, the relationships of cumulative blast exposure and interval of blast exposure to central nervous system pathology and neurocognitive function, and the impact of TBI on aggression. Staff have continued to drive DVBIC's congressionally mandated studies while also developing, researching and publishing TBI-related protocols and manuscripts.

DVBIC at NMCSD coordinates care for TBI patients and provides extensive educational services. The regional education coordinator gained visibility throughout the year by facilitating 143 education and 10 training events reaching over 20,000 stakeholders. Included in these extensive outreach and education efforts was the hosting of the first Annual TBI Symposium at NMCSD, and a live virtual webinar for Naval Hospital Okinawa providers.

San Antonio, Texas

San Antonio Military Medical Center and Wilford Hall Ambulatory Surgical Center have been involved in the TBI initiative since DVBIC's inception by Congress in 1991. Staff participate in clinical research, ensure clinical care, and develop educational programs.

In 2014, the DVBIC regional education coordinator reached more than 4,500 healthcare providers, veterans, service members, families and community stakeholders through educational presentations and outreach events. The DVBIC recovery support specialist completed 217 patient follow-ups, ensuring that patients have access to the care and resources they need.

SAMMC research staff successfully completed the recruitment of participants for the Study of Cognitive Rehabilitation Effectiveness, known as SCORE, and Imaging Study of Cognitive Rehabilitation Effectiveness, known as iSCORE. Site researchers are continuing to build research portfolios to improve the lives of those who have suffered a TBI. The clinical care team screened 593 patients at the inpatient, outpatient and post-deployment settings and provided treatment on 223 occasions.

Fort Bragg, North Carolina

DVBIC Fort Bragg functions as part of the Department of Brain Injury Medicine at Womack Army Medical Center, which serves the largest beneficiary population in the Army. The site conducts clinical research, supports clinical care and case management, and engages in educational outreach programs.

The site started a Phase II clinical trial for an investigational medication to treat concussion. This study is one of many in a program of research investigating the evaluation, treatment and epidemiology of TBI, and dissemination of research findings continued. Fort Bragg conducted the Head to Head study, which compares computer-based cognitive tests to identify service members at risk for brain injury-related problems. The clinical care team assisted nearly 500 soldiers. DVBIC Fort Bragg's regional support specialist monitored patient progress and provided consultation and resources for service members, veterans and their families in the expanded catchment area of North Carolina and Tennessee. The regional education coordinator reached thousands of stakeholders through outreach efforts, including the "Ask a Provider Series," as part of Brain Injury Awareness Month efforts. The REC also visited Tennessee VA Medical Centers and military bases added to Fort Bragg's catchment area.

Walter Reed National Military Medical Center, Bethesda, Maryland

The Walter Reed National Military Medical Center (WRNMMC) undertakes clinical research, ensures clinical care and develops educational programs in coordination with other DVBIC sites/locations.

In 2014, WRNMMC saw tremendous growth in the 15-Year Studies; the 15-Year Study Team grew to 26 positions. From the beginning of the 15-Year Studies through the end of 2014, the 15-Year Team had published 57 manuscripts and conducted 66 conference presentations. The Natural History Comprehensive Pathway had 360 consented participants and conducted 186 baseline evaluations; the Brief Pathway had 322 consented participants and completed 185 baseline evaluations. The 15-Year Caregiver Study had 241 consented participants and conducted 157 baseline evaluations. The TBI-Care Quality of Life Development Study completed the military focus groups and developed the military items, completed cognitive interviews on the general items and started field testing the general items. The Natural History Brief and Caregiver Studies expanded recruitment to Naval Medical Center San Diego and Camp Pendleton and hired a research assistant at both sites.

The National Institutes of Health sub-award for the TBI-Care Quality of Life Development Study was finalized between the University of Michigan and General Dynamics Information Technology.

In 2014, the Brain Fitness Centers at WRNMMC and Fort Belvoir Community Hospital had 3,082 patient visits, which include visits from 183 new patients in 2014. Of those, 59 patients are still active.

Fort Belvoir, Virginia

The Fort Belvoir DVBIC site is a fully integrated part of the Intrepid Spirit and National Intrepid Center of Excellence (NICoE) for comprehensive care for active duty service members and their beneficiaries. The DVBIC site opened in 2011 with the opening of Fort Belvoir Community Hospital. The DVBIC site integrated with the Intrepid Spirit site when it opened in 2013 and has grown in all aspects — clinical care, research, and education. Clinical care services now include over 15 disciplines of care to provide medical, psychological, social and spiritual comprehensive care for patients with TBI and PTSD. The center has averaged over 600 new patient evaluations and 20,000 patient visits annually since its beginning.

Research at the center, including DVBIC, has grown to approximately 17 research protocols, including longitudinal observational studies, interventional trials, and epidemiological research with collaborations from multiple institutions including the National Institutes of Health, Harvard Medical School, Kessler Foundation, Virginia Commonwealth University, and others. Staff members have been invited to present research studies at national and international conferences, including NIH, DoD and individual specialty conferences.

The educational program has included outreach throughout the DoD and community centers with several providers presenting DVBIC webinars and prominent international venues. DVBIC Fort Belvoir also hosted the DVBIC Brain Injury Awareness month in 2014 at Fort Belvoir Community Hospital and established an annual staff retreat. Site staff look forward to continuing and expanding on these great activities in the coming year.

Camp Pendleton, California

DVBIC Camp Pendleton works collaboratively with the Office of Neurotrauma/NAVMED West, Navy Hospital Camp Pendleton Concussion Care Clinic, and 1st Marine Expeditionary Force. DVBIC Camp Pendleton provides improved access to care for Marines and provides them with clinical service, care coordination, and education while participating in TBI research.

Clinical services include TBI screening, evaluation and patient/family education, neuropsychological assessment, duty status determination and consultation services. The recovery support specialist assists service members and veterans with TBI as they transition from the Department of Defense to the VA Health Care System. The research team continues to work on innovative studies aimed at understanding topics such as the neurobehavioral and cognitive impact of mTBI, anger, and aggressive behavior in the military after TBIs.

In 2014, DVBIC Camp Pendleton developed and began leading a 6-week Psychoeducation Group through the base Concussion Clinic for service members with a history of concussion(s) who continue to report symptoms beyond the usual recovery timeframe of about 3 months. Their partners/spouses were encouraged to attend as well. DVBIC Camp Pendleton also hosted in August the first annual multidisciplinary Camp Pendleton TBI Symposium to provide continuing medical education training related to TBI care to the incoming round of general medical officers on base, as well as other interested providers. This well-attended event featured DVBIC and other Concussion Clinic providers

Joint Base Elmendorf-Richardson, Anchorage, Alaska

The Joint Base Elmendorf-Richardson (JBER) Mild Traumatic Brain Injury Clinic is DVBIC's sole Air Force-based TBI facility. DVBIC JBER uses state-of-the-science diagnostic and rehabilitative equipment and complementary interventions, such as acupuncture and restorative yoga, to provide holistic care to a population of more than 12,000 active-duty service members and retirees, as well as their dependents. The site includes clinical and education staff. During 2014, the TBI Clinic added a recovery support specialist and an occupational therapist, bringing to 14 the total number of personnel. Following a $42,000 renovation, the clinic opened a new cognitive rehabilitation "brain lab."

JBER Hospital was named the Air Force Medical Service Best Hospital of 2014. The achievements contributing to this award include the following:

- DVBIC JBER received 351 new patient referrals during the year, resulting in a 98% return-to-duty rate. Total patient visits for the year totaled 4,500
- The Clinic led the base-wide Automatic Neuropsychological Assessment Metric, screening more than 1,200 service members and civilians prior to deployment
- The regional education coordinator reached 4,781 service members, families, veterans, providers, local law enforcement and community members by sharing information about TBI prevention, screening and care

Landstuhl, Germany

Landstuhl Regional Medical Center (LRMC) is the only Level I Trauma Medical Treatment Facility outside the continental U.S. and the largest medical facility in the European Regional Medical Command. The mission of the TBI Screening Team at Landstuhl Regional Medical Center is to ensure all military personnel, civilian (DoD and contractors), and coalition military personnel who are evacuated by air from theater for OEF/OND will undergo TBI screening before returning to duty or being sent back to the United States.

The Intensive Rehabilitation TBI Program at LRMC aims to help patients return to duty and/or maximize their quality of life and recovery of function. To achieve this end, team members evaluate patient needs and work with the patient to develop a comprehensive plan tailored to the patient.

VA Medical Center, Minneapolis, Minnesota

Minneapolis DVBIC is located within the Minneapolis Veterans Affairs Health Care System, a Department of Veterans Affairs Veterans Integrated Service Network-23 tertiary care referral center. The Minneapolis VA medical center undertakes clinical research, care coordination and education. The research staff recruited participants for the TBI Model Systems and the Transcranial Direct Current Stimulation for Cognitive Control studies. In addition, the staff developed a strong research collaboration with the Iowa City VA through work on the Longitudinal Neurodegeration study. The research team is developing novel intervention-focused research protocols that will address TBI and its comorbid conditions.

The regional education coordinator performed educational outreach locally and throughout the 11-state catchment area, establishing contacts within each state. The recovery support specialist worked to optimize clients' successful engagement, treatment and recovery from TBI. Support was provided by facilitating connection to care and resources in addition to conducting regular needs assessments and follow-up consultations.

VA Medical Center, Palo Alto, California

DVBIC Palo Alto has been a fundamental part of the success of VA Palo Alto Health Care System and continues to make a significant impact in each of the core program areas it fosters: clinical research, care coordination, and education and outreach. DVBIC Palo Alto supports and integrates within the Polytrauma System of Care (PSC) and works in collaboration with national, regional and local community centers and stakeholders.

DVBIC staff hosted the 4th Annual TBI Research Forum on March 28, 2014, at VA Palo Alto. Over 125 participants attended the day-long forum, which highlighted four invited speakers who spoke about TBI and Technology. The VA Northern California region submitted 19 posters, and a thriving exhibitor session showcased many innovative TBI technologies.

DVBIC Palo Alto's Education Program hosted two large educational events that support clinical providers, service members, veterans and their families. On May 6, DVBIC staff collaborated with the PSC and War-Related Illness and Injury Study Center staff to design, organize and deliver a workshop titled "Women Veterans, Brain Injury, and Trauma." This event was attended by 110 VHA and community providers. On October 24, the DVBIC Palo Alto REC introduced a new, day-long outreach workshop titled "Veterans Experiencing Homelessness, Brain Injury, and Trauma." This workshop was conducted in collaboration with PSC, War-Related Illness and Injury Study Center and the Palo Alto Domiciliary Service. The 68 attendees earned Continuing Education Units.

VA Medical Center, Boston, Massachusetts

VA Medical Center, Boston, Massachusetts The VA Boston Healthcare System (VABHS) provides inpatient and outpatient services to veterans at three campuses and five freestanding clinics. Veterans are evaluated for TBI through the outpatient polytrauma network site. Post-acute polytrauma patients can be managed in the Comprehensive Integrated Inpatient Rehabilitation Program.

DVBIC Deputy Director Katherine Helmick visited the medical center in January 2014 to facilitate ongoing collaborations and continue mission-related activities.

DVBIC Boston focuses on conducting research on TBI assessment, treatment, and functional outcomes. The site also offers physical medicine and a range of rehabilitative services to veterans with TBI. Current research efforts focus on cognitive and emotional functioning, as well as post-deployment and community reintegration.

VA Medical Center, Richmond, Virginia

Richmond DVBIC staff published several manuscripts from the "Epidemiological Study of Mild Traumatic Brain Injury Sequelae Caused by Blast Exposure During Operations Iraqi Freedom and Enduring Freedom" project on topics including symptom clustering, pain, PTSD, and mild TBI diagnosis. Of note, medical staff developed an algorithm for diagnosing mild TBI that aims to standardize injury diagnoses stateside and in the field.

Richmond DVBIC staff assisted with the initial approval process and staff training for "CENC Study 1: Observational Study on Late Neurologic Effects of OEF/OIF/OND Combat." Staff were hired, the first annual meeting for the consortium was held, and enrollment began for this multi-center DoD/VA grant-funded project. A data sharing plan was also established to facilitate dual enrollment of participants in this and the established "DVBIC: Prospective Traumatic Brain Injury Protocol (CTF)," a multi-site project.

Richmond DVBIC participated in the multi-center randomized clinical trial, "Treatment for Social Competence in Military Veterans, Service Members and Civilians with Traumatic Brain Injury."

Richmond DVBIC education coordination has continually increased education/training numbers throughout FY14. The education coordinator delivered/facilitated 76 education and outreach events reaching 2,197 stakeholders.

Education and recovery support have become influential components of the inpatient and outpatient polytrauma system of care. To date, they have educated more than 100 active duty and veteran status service members.

Through a partnership with the local Operation Enduring Freedom (OEF)/ Operation Iraqi Freedom (OIF)/ Operation New Dawn (OND) department, the education coordinator established regular outreach efforts to local colleges and veteran support facilities. Currently, the education coordinator hosts bimonthly open appointments at the Petersburg Freedom Support Facility.

With a caseload exceeding 100 and over 346 follow-ups, the Richmond RSS continues to collaborate with DoD, VA and civilian partners to assist service members and veterans with TBIs and facilitate access to care, resources and support, as needed.

VA Medical Center, Tampa, Florida

James A. Haley Veterans Hospital houses DVBIC Tampa. The hospital is an acute and tertiary medical center that serves the largest number of veterans in the nation. The VA Polytrauma/TBI program is an integrated system of care that provides the highest level of comprehensive inpatient and outpatient medical and rehabilitative services for all levels of TBI as well as the most complex and severely injured. The new James A. Haley Veterans' Hospital Polytrauma and Rehabilitation Center is a state-of-the-science facility that provides comprehensive, compassionate, high-quality interdisciplinary care to patients and their families.

The site undertakes clinical research, ensures clinical care, and develops educational programs in coordination with other DVBIC sites/locations. Research staff have created and implemented an advanced access database to identify potential enrollment in future studies. The regional education coordinator delivered or facilitated 118 education events, including Yellow Ribbon Events, reaching 5,697 service members, civilian and DoD care providers, veterans and family members.

The TBI support specialist primarily provided regular follow-up to OEF/OIF/OND service members or veterans who screened positive for TBI regardless of injury location. This follow-up included assessments and facilitating connections to direct service providers who could meet the patient's needs. The RSS and a neuropsychologist are involved in a new initiative at MacDill Air Force Base to provide a crosswalk of services available at James A. Haley VA to meet the needs for active duty service members with TBI.

INTERNATIONAL OUTREACH

Col. Leonard B. Brennan

Chief of Army Fellow, Australian Defense Force, Col. Brennan visited DVBIC headquarters Nov. 25 to examine the differences between minor TBI from direct and indirect blast exposures.

Col. Brennan, a general physician, is conducting a clinical audit of Australia's battle casualties from Iraq and Afghanistan, focusing on longer term rehabilitation and mental health outcomes. He had previously visited DVBIC sites at Fort Sam Houston, Texas, and Fort Bragg, North Carolina, Walter Reed National Military Medical Center in Bethesda, Maryland, and the National Security Agency, near Fort Meade, Maryland.

DVBIC's focus was on its coordination with the DoD Blast Injury Research Program Coordinating Office, the Joint Trauma Analysis and Prevention of Injury in Combat program and the Joint Program Committees (JPCs).

Col. Leonard B. Brennan, Australian Defense Force

Lt. Col. George Georgiadis

Command Health Officer, Special Operations Command, Australian Defense Force, Lt. Col. Georgiadis met with the DVBIC national director about DVBIC's TBI efforts, during the December Association of Military Surgeons of the United States conference in Washington, D.C.

Oliver Krueckel, Psychologist

Oliver Krueckel

A German psychologist currently supporting the Office of Integrated Services as part of the Engineers and Scientists Exchange Program, Mr. Krueckel conducted a familiarization rotation in December through DVBIC. Krueckel assisted DVBIC's Research Division with a literature search and review that supported an information paper on mild TBI and aggression.

Cmdr. James Blankenship

Cmdr. Blankenship deployed Oct. 2 to Anniston Army Depot en route to Liberia as part of the Public Health Service Ebola support mission. Cmdr. Blankenship is DVBIC's Research Division program evaluation chief and VA/Sexual Harassment-Assault Response & Prevention coordinator.

Cmdr. James Blankenship, U.S.P.H.S. DVBIC Program Evaluation Chief

RESOURCES

Crisis Intervention (24/7)

Department of Veterans Affairs, Military and Veterans Crisis Line
800-273-8255, press 1

Order & Print Materials

In addition to many materials available online, these resources are new for 2014. Find them on the DVBIC website at dvbic.dcoe.mil/resources

- 2014 Brain Injury Awareness Month Poster (Anyone, Anytime, Anywhere, Brain Injuries Do Not Discriminate
  A Parent's guide to Returning Your Child to School After a Concussion
- Army Concussion Management in the Garrison Setting Algorithm Pocket Card
- Complementary and Alternative Medicines, Modalities and Interventions Fact Sheet (undated)
- Concussion Management Algorithm Pocket Cards
- Concussion Management Algorithm Wallet Cards
- Concussion Signs and Symptoms Fact Sheet (available in many languages)
- Concussion/Mild Traumatic Brain Injury and Posttraumatic Stress Disorder Fact Sheet
- Indications and Conditions for In-Theater Post-Injury Neurocognitive Assessment Tool (NCAT) Testing
- Indications and Conditions for Neuroendocrine Dysfunction Screening Post mTBI Reference Card
- Indications and Conditions for Neuroendocrine Dysfunction Screening Post mTBI Training Slides
- Management of Sleep Disturbances Following Acute Concussion/Mild Traumatic Brain Injury:
  Guidance for Primary Care Management in Deployed and Non-Deployed Settings (Clinical Recommendation)
- Management of Sleep Disturbances Following Concussion/Mild Traumatic Brain Injury:
  Guidance for Primary Care Management in Deployed and Non-Deployed Settings (Clinical Recommendation)
- Management of Sleep Disturbances Following Concussion/Mild Traumatic Brain Injury:
  Guidance for Primary Care Management in Deployed and Non-Deployed Settings Clinical Support Tool
- Management of Sleep Disturbances Following Concussion/Mild Traumatic Brain Injury:
  Guidance for Primary Care Management in Deployed and Non-Deployed Settings Healthy Sleep Fact Sheet Bundle
- Management of Sleep Disturbances Following Concussion/Mild Traumatic Brain Injury:
  Guidance for Primary Care Management in Deployed and Non-Deployed Settings Warfighter Sleep Kit
- Management of Sleep Disturbances Following Concussion/Mild Traumatic Brain Injury:
  Guidance for Primary Care Management in Deployed and Non-Deployed Settings Training Guide
- Mild TBI Symptom Management Fact Sheet: Changes in Behavior, Personality or Mood
- Mild TBI Symptom Management Fact Sheet: Head Injury and Dizziness
- Mild TBI Symptom Management Fact Sheet: Headache and Neck Pain
- Mild TBI Symptom Management Fact Sheet: Ways to Improve Your Memory
- Mild TBI Symptom Management Fact Sheet: Healthy Sleep
- Progressive Return to Activity Following Acute Concussion/mTBI: Guidance for the Rehabilitation Provider in Deployed and Non-Deployed Settings Clinical support Tools and Provider Training Slides
- Progressive Return to Activity Following Acute Concussion/mTBI:
  Patient Activity Guidance After Concussion (Patient Education Tool)
- Progressive Return to Activity Following Acute Concussion/mTBI Clinical Suite
- Progressive Return to Activity Following Acute Concussion/mTBI:
  Guidance for the Primary Care Manager in Deployed and Non-Deployed Settings Clinical Recommendation
- Progressive Return to Activity Following Acute Concussion/mTBI:
  Guidance for the Primary Care Manager in Deployed and Non-Deployed Settings Reference Card
- Progressive Return to Activity Following Acute Concussion/mTBI:
  Guidance for the Rehabilitation Provider in Deployed and Non-Deployed Settings Clinical Recommendation
- Progressive Return to Activity Following Acute Concussion/mTBI:
  Guidance for the Rehabilitation Provider in Deployed and Non-Deployed Settings Clinical Suite
- Progressive Return to Activity Following Acute Concussion/mTBI:
  Guidance for the Rehabilitation Provider in Deployed and Non-Deployed Settings Reference Card
- Return to Activity Educational Brochure: guidance for Service Members with Symptoms Following a Concussion
- Traumatic Brain Injury Awareness Fact Sheet

Web Products

mTBI Pocket Guide and Mobile Application

A Head for the Future

Most TBIs in the military are diagnosed in a nondeployed setting. The A Head for the Future campaign was created to raise awareness and lower the risk of concussion. dvbic.dcoe.mil/aheadforthefuture

See the suite of A Head for the Future Mild Traumatic Brain Injury (mTBI)/Concussion Posters (set of three).

A Head for the Future DVBIC Resources

Recognize:

- DVBIC Fact Sheet
- Signs and Symptoms Fact Sheet: Concussion/Mild Traumatic Brain Injury
- Moderate or Severe TBI Fact Sheet
- Concussion/Mild Traumatic Brain Injury and Posttraumatic Stress Disorder Fact Sheet
- Talking With Children About Moderate or Severe TBI
- Talking With Children About TBI

Prevent:

- DVBIC Traumatic Brain Injury Awareness Fact Sheet
- Ways to Protect Your Head and Prevent TBI

Recover:

For people diagnosed with TBI:

- TBI Recovery Support Program

For parents and caregivers:

- A Parent's Guide to Returning Your Child to School After a Concussion
- Addressing Family Needs
- Back to School Guide to Academic Success After Traumatic Brain Injury
- Taking Care of Yourself While Caring for Others
- Traumatic Brain Injury: A Guide for Caregivers of Service Members and Veterans
- Department of Veterans Affairs Caregiver Support

For symptom management:

- TBI Symptom Management: Changes in Behavior, Personality or Mood
- TBI Symptom Management: Head Injury and Dizziness
- TBI Symptom Management: Headache and Neck Pain
- TBI Symptom Management: Improving Memory
- Warfighter Sleep Kit
- Help with Ongoing Symptoms Fact Sheet

Information Papers

The following information papers may be found on the Research Division web page, dvbic.dcoe.mil/research/information-papers

- Chronic Traumatic encephalopathy, Dec. 18, 2014
- Multiple Traumatic Brain Injury/Multiple Concussion, Dec. 9, 2014
- Hyperbaric Oxygen for Traumatic Brain Injury (TBI), Feb. 5, 2014
- Hyperbaric Oxygen for Traumatic Brain Injury (TBI): Summary, Feb. 5, 2014

Web-based TBI Case Studies

Read about Clinical Affairs clinical recommendations at dvbic.dcoe.mil/resources

- Assessment and Management of Dizziness Associated with mTBI Clinical Recommendation
- Assessment and Management of Visual Dysfunction Associated with mTBI Clinical Recommendation
- HEADS - Protect Your Strongest Weapon
- Neuroimaging following mTBI in the Non-Deployed Setting Clinical Recommendation

The following studies may be found on the Research Division web page, dvbic.dcoe.mil/research/browse/current-dvbic-studies

- Assessment of the pupillary light reflex (PLR) and eye movements for early identification of warfighters with acute mild TBI/concussion, March 2014
- Extending Smart Home Technology for Cognitively Impaired Veterans to Delay Institutionalization (Part II), February 2014

Webinars

Listen to the full 2014 webinars at dvbic.dcoe.mil/training/webinars

Nov. 13, 2014 – Technology Interventions for TBI.
Speaker: David C. Cooper, Psy.D., Psychologist, Mobile Health Program, National Center for Telehealth and Technology, Joint Base Lewis-McChord, Tacoma, Washington.

Oct. 9, 2014 – Gender Issues and Sport-related Concussion.
Speaker: Tracey Covassin, Ph.D., ATC, Associate Professor; Director, Undergraduate Athletic Training Education; Director, Sport-Related Concussion Laboratory, Department of Kinesiology, Michigan State University, East Lansing, Michigan.

Aug. 14, 2014 – Breaking the Code: ICD-9-Clinical Modification Diagnosis Coding for Traumatic Brain Injury.
Speaker: Amy Waller, CPC, CPMA, CPCO, American Health Information Management Association approved ICD-10-CM/PCS Trainer/Ambassador Senior ICD-10 Trainer, Team: Dynamics Research Corporation/Standard Technology, INC., Arlington, Virginia/Bethesda, Maryland.

July 10, 2014 – Do Helmets Prevent Concussion?
Speakers: Kristy Arbogast, Ph.D., Research Associate Professor, Pediatrics; Co-Scientific Director, Center for Injury Research and Prevention, Children's Hospital of Philadelphia, University of Pennsylvania, Philadelphia, Pennsylvania; Donald Marion, M.D., M.Sc., Clinical Affairs Senior Advisor, contract support to Defense and Veterans Brain Injury Center, Silver Spring, Maryland; and Steven Rowson, Ph.D., Assistant Research Professor, School of Biomedical Engineering & Sciences, Virginia Tech, Blacksburg, Virginia.

June 12, 2014 – Why Does Concussion Affect Men Differently Than Women?
Speakers: Janet P. Niemeier, Ph.D., ABPP, Professor and Senior Director of Research, Carolinas Rehabilitation, Carolinas Medical Center, Charlotte, North Carolina; and Amy K. Wagner, M.D., Associate Professor and Vice Chair for Research, Department of Physical Medicine and Rehabilitation, Associate Director, Rehabilitation Research, Safar Center for Resuscitation Research, University of Pittsburgh, Pittsburgh, Pennsylvania.

May 8, 2014 – Diagnosis and Management of Post-traumatic Headache.
Speakers: Jeanne M. Hoffman, Ph.D., ABPP, Associate Professor, Department of Rehabilitation Medicine, and Sylvia Lucas, M.D., Ph.D., Clinical Professor, Department of Neurology, Neurological Surgery and Rehabilitation Medicine, both from the University of Washington, Seattle, Washington.

Webinars (continued)

April 10, 2014 – Family Caregiver Support after Traumatic Brain Injury
Speaker: Janet Cromer, R.N., M.A., BCPC, Certified Compassion Fatigue Educator, Board Certified Professional Counselor, Registered Art Therapist, Independent Consultant, Bethesda, Maryland.

March 13, 2014 – Progressive Return to Activity Following a Concussion
Speakers: Michael McCrea, Ph.D., ABPP, Professor of Neurosurgery and Neurology, Director, Brain Injury Research, Medical College of Wisconsin, Milwaukee, Wisconsin; and Therese A. West, DNP, APRN, FNP-C, CPN-BC, Office of Clinical Affairs, Division of Clinical Practice and Clinical Recommendations, Defense and Veterans Brain Injury Center, Silver Spring, Maryland.

Feb. 13, 2014 – TBI Management in the Deployed Environment: The Concussion Care Center Model
Speakers: Cmdr. Randy Reese, MSC, U.S. Navy, Senior Neuropsychologist, Intrepid Spirit Concussion Recovery Center, Naval Hospital, Camp Lejeune, North Carolina; and Capt. Katherine Hill, M.S., OTR/L, U.S. Army, Assistant Chief of Occupational Therapy, Martin Army Community Hospital, Fort Benning, Georgia.

Jan. 16, 2014 – State of the Science: Clinical, Metabolic and Pathologic Effects of Multiple Concussions
Speakers: Steven T. DeKosky, M.D., FAAN, FACP, FANA, Visiting Professor, Department of Medical Ethics and Health Policy, Perelman School of Medicine at University of Pennsylvania, Philadelphia, Pennsylvania; Professor of Neurology, Psychiatry and Behavioral Sciences; Director of the Alzheimer's Disease Center, University of Virginia School of Medicine, Charlottesville, Virginia; J. Clay Goodman, M.D., FAAN, Professor and Associate Dean, Departments of Pathology and Immunology and Neurology, Baylor College of Medicine, Houston, Texas; and David A. Hovda, Ph.D., Director, University of California, Los Angeles (UCLA) Brain Injury Research Center; Professor of Neurosurgery and Molecular and Medical Pharmacology, David Geffen School of Medicine at UCLA, Los Angeles, California..

Events:

Go to dvbic.dcoe.mil/training to open on-demand sessions.

TBI Global Synapse, Sept. 15-17, 2014: A Summit Without Borders
DVBIC TBI Grand Rounds, Sept. 22, 2014: Post-Traumatic Headache Assessment
DVBIC TBI Grand Rounds, Nov. 7, 2014: It's Complicated: TBI and Sexuality

Additional Learning Opportunities:

Online Courses for Military and Civilian Healthcare Providers

U.S. Air Force Photo by Staff Sgt. Christopher Hubenthal

PUBLICATIONS, BOOKS/CHAPTERS & PRESENTATIONS

Bailie, J. M., Cole, W. R., Ivins, B., Boyd, C., Lewis, S., Neff, J., & Schwab, K. (2014). The experience, expression, and control of anger following traumatic brain injury in a military sample. Journal of Head Trauma Rehabilitation, 95(3 Suppl):S230-7.

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Bell, K. R., Brockway, J. A., Fann, J. R., Cole, W. R., De Lore, J. S., Bush, N., et al. (2014). Concussion treatment after combat trauma: Development of a telephone based, problem solving intervention for service members. Contemporary Clinical Trials, 40c:54-62.

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French, L. M., Lange, R. T., Marshall, K., Prokhorenko, O., Brickell, T. A., Bailie, J. M., Asmussen, S. B., Ivins, B., Cooper, D. B., & Kennedy, J. E. (2014). Influence of the severity and location of bodily injuries on post-concussive and combat stress symptom reporting after military-related concurrent mild traumatic brain injuries and polytrauma. Journal of Neurotrauma.

Greenwald, B. D., Hammond, F. M., Harrison-Felix, C., Nakase-Richardson, R., Howe, L. L. S., Kreider, S. (2014, December). Mortality following Traumatic Brain Injury among Individuals Unable to Follow Commands at the Time of Rehabilitation Admission: A NIDRR TBI Model Systems Study. Journal of Neurotrauma, [Epub ahead of print].

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Presentations

Kean, J. (Organizer), Scholten, J., Nakase-Richardson, R., Pickett, T., Malec, J., McDonnell, C. (2014, October). What is Unique About Military and Veteran Rehabilitation After Brain Injury? Symposium Presentation at the American Congress of Rehabilitation Medicine Annual Conference, Toronto, Canada.

Nakase-Richardson, R. (Organizer), Giacino, J., Whyte, J., Katz, D., Rosenbaum, A., Pape, T., Zasler, N., Greenwald, B. (2014, October). Minimal Competency Guidelines For Rehabilitation Of Persons With DOC. Symposium Presentation at the American Congress of Rehabilitation Medicine Annual Conference, Toronto, Canada.

Nakase-Richardson, R. (Organizer), Whyte, J., Giacino, J., Katz, D., Weintraub, A., Zafonte, R., Sherer, M. Building Capacity: Formal Introduction and Implementation of Recommendations for the Management of Persons with DOC. Instructional course submitted to the American Congress of Rehabilitation Medicine.

Nakase-Richardson, R. (Organizer), Zafonte, R., Makley, M., Bell, K. (2014, October). Conceptual Framework for The Study Of Sleep Disturbance Following Acute Neurologic Injury. Symposium Presentation at the American Congress of Rehabilitation Medicine Annual Conference, Toronto, Canada.

Scherer, M., Schulz, B., Hart, T., Resnik, L., Levy, C., Nakase-Richardson, R. (Organizer). (2014, October). Integrating Assistive Technology Into Rehabilitation Programming: Successes and Challenges. Symposium Presentation at the American Congress of Rehabilitation Medicine Annual.

Back cover photo: On an average month, hundreds of wounded Soldiers, Airmen, Marines, Sailors and Iraqi personnel pass underneath the American flag-emblazed canopy known as Hero's Highway. Ninety-eight percent of the patients treated at Balad's Air Force Theater Hospital survive. U.S. Air Force photo by Tech. Sgt. Cecilio M. Ricardo Jr.

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