The primary operational TBI component of the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury

Brainwaves

DVBIC Brainwaves • Summer 2010
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Farewell Message From

Col Michael S. Jaffee, MD

MC, USAF, FS
Outgoing National Director, DVBIC

This issue of *DVBIC Brainwaves* marks the end of my tour and the beginning of new leadership, as COL Jamie B. Grimes assumes the role of National Director. It has been a true honor to serve DVBIC's mission in meeting the needs of Service Members and Veterans with traumatic brain injury (TBI) and their Families.

DVBIC plays a unique role in partnering with military, veterans, government and civilian organizations. Through a multi-site network of excellence, we have worked to develop initiatives whose quality and impact have been recognized by numerous senior leaders and multiple agencies. The most important impact is on our Wounded Warriors and Families. It is their feedback that keeps our compass directed.

New guidelines supported by the Joint Chiefs of Staff will expand the paradigm of in-theater TBI management. This expansion represents a true collaboration between military medical leaders and our line commanders and builds upon the initiatives from the multi-agency Gray Team formed by the Chairman of the Joint Chiefs.

We are also proud of the advances made in TBI collaboration between the Department of Defense (DoD) and the Department of Veterans Affairs (DVA). These were featured in DoD testimony in May before the Senate Veterans Affairs Committee and focused on the many collaborations implemented over the past three years to include development of practice guidelines, care coordination, innovative research and educational initiatives.

The needs of our Warriors and Veterans are pressing, and the DVBIC network has advanced this mission at a critical time in history. The accomplishments of the past three years would not have been possible without the collaboration and support we have received from every Service branch, our VA partners, NATO allies and academic partners. I am continually amazed at the professionalism of those who serve our Wounded Warriors.

Although a foundation has been established, there is still much work to do, especially in supporting Service execution of many new initiatives. I have every confidence for continued success based on your dedication, which has served as a true inspiration to me these past three years. To our Wounded Warriors, their Families, and those who support them: my sincerest thanks and appreciation for all you have done and continue to do.

DVBIC National Director Transition

DVBIC welcomes our new National Director, **COL Jamie B. Grimes, MD, MC, USA**.

Since 2007, COL Grimes has served as DVBIC Site Director at Wilford Hall Medical Center and Brooke Army Medical Center, now combined as the San Antonio Military Medical Center (SAMMC*). She has been a staff neurologist at BAMC since 2000 and was Deputy Chair of Neurology at SAMMC.

COL Grimes is Neurology Consultant to the Army Office of The Surgeon General (OTSG), having previously served in that capacity for the Great Plains Regional Medical Command. Her in-theater experience includes a nine-month tour of duty in 2004 with the 359th Neurosurgical Team in Baghdad, Iraq during the period of highest number of neurotrauma patients in the past seven years.

Board-certified in vascular neurology, neurology, and psychiatry, COL Grimes has served as Assistant Professor of Neurology at both the Uniformed Services University of the Health Sciences (USUHS) and The University of Texas Health Science Center at San Antonio.

Col Michael S. Jaffee, MD, MC, USAF, FS has served as DVBIC National Director since 2007. He now returns to academics at SAMMC,* where he previously served as DVBIC Site Director and Neurology Program Director. He was also Assistant Clinical Professor of Neurology and Associate Clinical Professor of Psychiatry at The University of Texas Health Science Center at San Antonio.

Col Jaffee's leadership has been recognized by the Congressional Brain Injury Task Force and four cabinet-level agencies. DVBIC has created a new annual Department of Defense traumatic brain injury (TBI) leadership award in honor of his contributions.

**SAMMC is the military facility that manages the most TBI patients. It is the military's only Level I Trauma Center.*

DVBIC Site Profile: Hunter Holmes McGuire VA Medical Center

McGuire VA Medical Center, located in Richmond, Virginia, is a 409-bed facility and tertiary care referral center for traumatic brain injury (TBI). The Polytrauma Rehabilitation Center (PRC) is one of four facilities in the country designed to provide intensive rehabilitative care to Veterans and Service Members with severe trauma injuries such as TBI.

The center has a capacity of 15 inpatient beds and provides medical rehabilitation services by a team of clinical specialists including physiatrists, rehabilitation nurses, social work case managers, neuropsychologists, rehabilitation psychologists, speech language pathologists, and physical, occupational, kinesio- and recreation therapists, as well

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A **traumatic brain injury (TBI)** is caused by a blow/jolt to the head or penetrating head injury that disrupts the normal function of the brain. Not all blows/jolts to the head result in a TBI. TBI severity may range from **mild** (a brief change in mental status or consciousness) to **severe** (an extended period of unconsciousness or amnesia after injury). The terms **concussion** and **mild TBI** are interchangeable.

DVBIC Site Profile: Hunter Holmes McGuire VA Medical Center

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as a Department of Defense (DoD) Military Liaison. In addition to inpatient interdisciplinary treatment, case management and family education, the center offers a wide array of outpatient services. Patients have access to interdisciplinary day programming, individualized treatment plans, and outpatient clinics specializing in the identification and management of TBI.

In 2007, the Polytrauma Transitional Rehabilitation Program (PTRP) was formed to focus on post-acute cognitive retraining and community re-integration. PTRP offers health and wellness programming, along with vocational and cognitive rehabilitation. Later this year, patients will move into a brand new, state-of-the-art facility.

The Richmond DVBIC Team

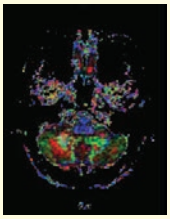
The missions of Richmond DVBIC are clinical research, care coordination, and education for Veterans and Service Members with TBI and their Families. The DVBIC research team collaborates closely with the local Polytrauma team and nearby Virginia Commonwealth University Department of Physical Medicine and Rehabilitation, as well as multiple outside organizations including the Department of Defense, National Institute on Disability and Rehabilitation Research, National Data and Statistical Center, and various academic institutions. Richmond is the lead site for the national DVBIC Methylphenidate study being conducted at the four VA Polytrauma sites. Currently, there are 12 active clinical research studies with a half dozen in development.

Care Coordination and Education services are provided throughout the central region of Virginia and North Carolina. The Regional Care Coordinator and Regional Education Coordinator work together with the Polytrauma staff to serve the needs of TBI patients and their families.

For more information, please visit: www.richmond.va.gov and www.DVBIC.org

Advanced Computer Simulations Lead to New Understanding of Blasts

America's armed forces sustain attacks from explosions or blasts by rocket-propelled grenades, improvised explosive devices (IEDs) and land mines almost daily in deployed settings. Civilian workers and military personnel working in these combat zones are at increased risk of blast-related trauma, particularly blast-related traumatic brain injury (TBI).



To understand how blasts affect the head and brain, DVBIC researchers work with the MIT ISN,* JIEDDO,** and the US Army Research Laboratory. Their objective is force health protection: mitigating against injury by improving the design and performance of protective gear that supports optimal functioning of Warriors, many of whom deploy repeatedly on dangerous missions.

One of the most effective research tools today is computerized simulation modeling, which can test many variations of blasts and their effects. Researchers combine laboratory data with intricate codes, which then enable a computerized model to simulate onscreen the effects of blasts at various intensities and various angles of the brain. Codes are validated by laboratory experiments and diagnostic imaging techniques such as diffusion tensor imaging (DTI).***

Scientists can test different hypotheses and fine-tune their studies by slightly altering components of the simulated model. This avoids testing on live subjects and attempting to scale lab results according to the size of an animal compared to a human.

Computerized simulation models have been used to study how blast waves affect the human body and the resulting changes in pressure in the body. The DVBIC-MIT Blast-Brain Model has been described as the most advanced computer simulation of blast effects on the brain developed so far. This model has already provided new information on how blast waves are transmitted to the brain.

Modeling technology is efficient and cost-effective. It allows for multiple strategies and hypotheses to be tested. It accelerates the development of technology by providing the ability to test novel engineering solutions and design concepts. It also allows organizations interested in the same research to combine forces, ensuring that our Warriors receive the best protection and care that the military can offer.

**Massachusetts Institute of Technology (MIT) Institute for Soldier Nanotechnologies (ISN)*

*** Joint Improvised Explosive Device Defeat Organization (JIEDDO)*

****DTI, a form of magnetic resonance imaging (MRI), helps differentiate between healthy and injured brain tissue by showing a 3-dimensional* in vivo *view of water as it moves through the white matter bundles of the brain. To learn more, see "New View With DTI,"* Summer 2009 DVBIC Brainwaves, *at www.DVBIC.org.*

DVBIC Brainwaves is a quarterly publication of the Defense and Veterans Brain Injury Center (DVBIC), the primary operational TBI component of the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE). Point of Contact: Sheryl C. Chiasson, MBA/HA, BSW, Editor. Email: brainwaves@DVBIC.org

Traumatic Brain Injury: A Guide for Caregivers of Service Members and Veterans

A new resource for family caregivers of Service Members and Veterans who have sustained a moderate or severe traumatic brain injury (TBI) is now available. *Traumatic Brain Injury: A Guide for Caregivers of Service Members and Veterans* may be downloaded from the Center of Excellence for Medical Multimedia (CEMM) website, at www.TraumaticBrainInjuryAtoZ.org, and at www.DVBIC.org.

Originally mandated by Congress in the 2007 National Defense Authorization Act, the Guide was developed by the 15-member TBI Family Caregiver Panel of the Defense Health Board appointed by the White House. Panel members represented the Departments of Defense (DoD), Veterans Affairs (DVA), and Health and Human Services, as well as civilian experts and caregivers.

In April 2010, the DoD Force Health Protection and Readiness Council approved the Guide for distribution throughout the DoD. They assigned DVBIC responsibility for disseminating and maintaining the Guide. In addition, the DVA Office of the Under Secretary for Health approved this new resource for dissemination throughout VA facilities.

Print copies will be given to family caregivers beginning this summer, by case managers and clinicians from the DoD and DVA who receive training on the uses and content of the Guide. The print version and Caregiver's Companion are presented in loose-leaf binders, housed in a backpack. The online version of the Guide is downloadable and includes multimedia components.

Traumatic Brain Injury: A Guide for Caregivers of Service Members and Veterans consists of a Welcome section and four modules. It is written in a question and answer format at an eighth grade reading level. Photos and quotes from family caregivers of Service Members and Veterans who sustained a moderate or severe TBI are found throughout the Guide.

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