

# Two VA Initiatives on Traumatic Brain Injury in Veterans

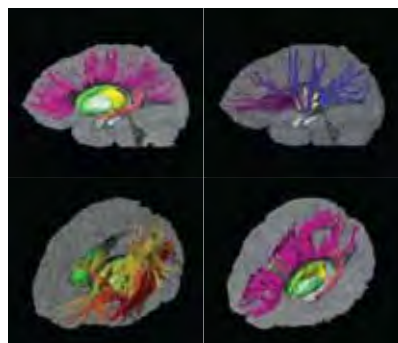


*Informing and improving diagnosis and treatment of traumatic brain injury in Veterans*

## INITIATIVES

**Traumatic Brain Injury Veterans Health Registry** page 2

**National Health Study for a New Generation of US Veterans/The MIND Study**  
(Markers for the Identification, Norming, and Differentiation of TBI and PTSD) page 3



Images of the white matter tracts in the normal brain using diffusion tensor imaging tractography, an advanced technique that measures the movement of water molecules within brain cells.\*

Traumatic brain injury (TBI) may result from an impact to the head or a penetrating trauma. During military service, TBI can occur without any visible wounds when the brain is exposed to explosion-related pressure changes. Symptoms associated with TBI range from headaches, irritability, and sleep disorders to memory problems, slower thinking, and depression. More serious injury can result in more significant neurological problems.

Because TBI can affect how a person thinks and acts, even mild brain injuries can significantly disrupt the lives of Veterans and their families. In addition, military events that cause TBI, typically blasts, are extremely stressful to experience. TBI can be present along with posttraumatic stress disorder (PTSD) and the symptoms can overlap. Accurate diagnosis of TBI and PTSD and effective treatments are essential.

The TBI Veterans Health Registry and New Generation/MIND study are part of the Department of Veterans Affairs efforts to improve the outcome of traumatic brain injuries in our Nation's Veterans.

\*Wakana S, Jiang H, Nagae-Poetscher LM, van Zijl PC, Mori S. "Fiber Tract-based Atlas of Human White Matter Anatomy." *Radiology*. (January 2004);230(1):77-87. Published online (November 2003). Accessed March 9, 2010.

## Traumatic Brain Injury Veterans Health Registry

The TBI Veterans Health Registry will provide military and civilian researchers with data on a large number of well-documented cases of TBI in Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF) Veterans. This data resource will allow for comparisons of screening, diagnostic methods, and treatment options with the goal of improving outcomes for Veterans who have experienced this injury. The TBI registry has been constructed from VA outpatient and hospitalization records and from clinical screenings of Veterans who access VA health care. Preliminary research projects have been initiated with this cohort of OEF/OIF Veterans.

The National Defense Authorization Act of Fiscal Year 2008, Public Law 110-181, Section 1704 (d), requires the Secretary of Veterans Affairs to establish and maintain a Traumatic Brain Injury (TBI) Veterans Health Registry. The registry must include information about each individual who served as a member of the Armed Forces in Operation Enduring Freedom or Operation Iraqi Freedom who exhibits symptoms associated with TBI and applies for care and services from VA or files a claim for compensation from VA on the basis of any disability.

VA is to collaborate with the TBI rehabilitation research community, grantees of the National Institute of Disability and Rehabilitation Research (NIDRR) of the Department of Education, the Defense and Veterans Brain Injury Center (DVBIC), and other Governmental entities engaged in TBI rehabilitation. VA is to notify individuals listed in the registry of significant developments in research on the health consequences of military service in OEF/OIF.

VA signed an interagency agreement with NIDRR in August 2008 to develop an inclusive TBI Veterans Health Registry and to create and maintain a mechanism to include data from the four VA Polytrauma Rehabilitation Centers into the nationwide network of the TBI Model Systems (TBIMS) database. The TBIMS is a NIDRR project to systematically collect longitudinal data on TBI patients nationwide. Inclusion of VA patients into the TBIMS strengthens both NIDRR's and VA's ability to better understand TBI, and benchmarks rehabilitation and longitudinal functional outcomes from VA Polytrauma Rehabilitation Centers with those of other TBIMS Centers.

### REGISTRY ELEMENTS

- Demographics - descriptive information such as gender, age, race/ethnicity, education level
- Military service data
- Medical histories predating a TBI
- Causes and severity of injuries
- Treatment histories
- VA disability claim status
- Vital status and cause of death if applicable

### RESEARCH USES OF THE REGISTRY

- Determine the number of TBI cases incurred during Operation Enduring Freedom and Operation Iraqi Freedom, as well as the medical resources accessed by Veterans
- Compare the distribution of TBI cases across age, sex, branch of military service, military occupation category, and geographic region
- Evaluate treatment outcomes to guide future research and policy development
- Compare symptoms, treatment, and outcomes of war related TBI to TBI in civilian patients
- Reconstruct timelines of symptom occurrence and compare progression of moderate versus severe TBI
- Examine the association of TBI with other medical conditions, including PTSD, depression, memory loss, sensory deprivation, and seizure



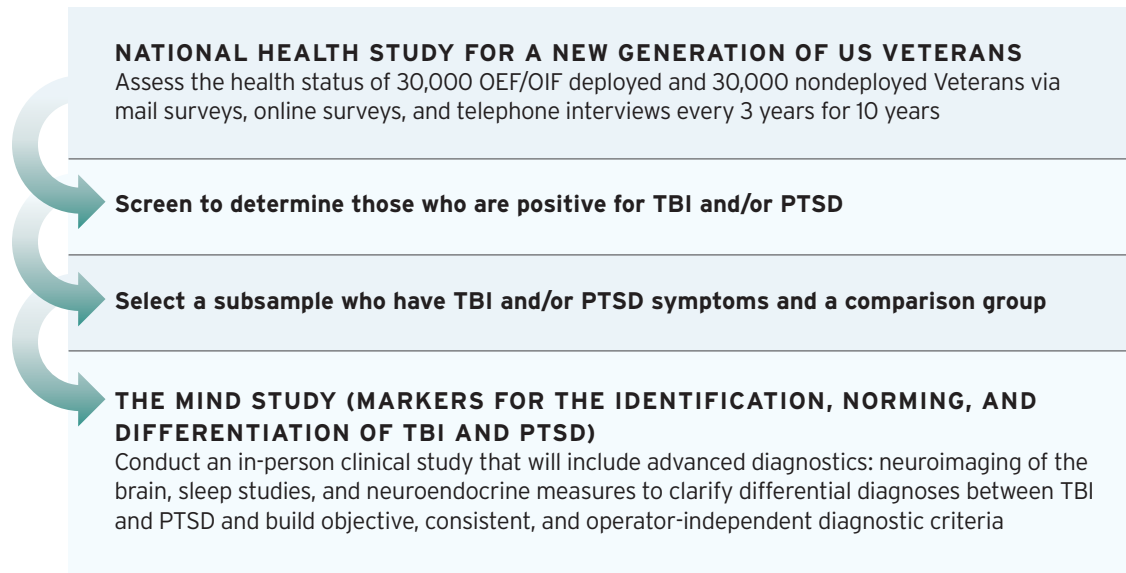
VA researchers study a Magnetoencephalography (MEG) scan of the brain, which captures electromagnetic signals from brain cells.

Leading the TBI Veterans Health Registry: VHA Environmental Epidemiology Service, Office of Public Health and Environmental Hazards, and VHA Rehabilitation Service, Office of Patient Care Services.

## National Health Study for a New Generation of US Veterans/The MIND Study (Markers for the Identification, Norming,\* and Differentiation of TBI and PTSD)

The **New Generation Study** uses surveys and interviews to follow 60,000 Veterans—deployed and nondeployed—for 10 years. It will assess a variety of health conditions, including TBI and PTSD. The study is an unprecedented effort to better understand the health concerns and behavioral risk factors of Veterans who have served in the conflicts in Afghanistan and Iraq. The study's special emphasis on TBI will allow for indepth followup of individuals who have experienced a TBI, or who have experienced symptoms of TBI, and the pursuit of clinical investigation into diagnostic methods, comorbid conditions, and treatments.

From the participants in the New Generation Study, the **MIND Study** will take a sample of Veterans who have symptoms of TBI and/or PTSD, and a comparison group of Veterans, to receive further physical evaluation and diagnostic testing at one of the three VA War Related Illness and Injury Study Centers (WRIISCs). It will clarify differential diagnoses between TBI and PTSD and build objective, consistent, and operator-independent diagnostic criteria.



The New Generation Study began collecting data in 2nd quarter FY 2009. By 3rd quarter FY 2010, the subsamples of Veterans with TBI or PTSD will be identified and brought in to the WRIISCs in Washington, DC; East Orange, NJ; and Palo Alto, CA to begin the MIND Study.

Leading the New Generation and MIND Studies: VHA Environmental Epidemiology Service (EES), Office of Public Health and Environmental Hazards (OPHEH), and the War Related Illness and Injury Study Centers, OPHEH.



\*"Norming" refers to developing average or standard values (norms) of a health measure by studying that measure in a large number of individuals. In the MIND Study, norms will be used to compare people with TBI or PTSD with people without these conditions. Norms will also be used to study the severity of these conditions.

## RESOURCES

### VA TBI/Polytrauma System of Care

[www.polytrauma.va.gov/index.asp](http://www.polytrauma.va.gov/index.asp)

### VA National Center for Posttraumatic Stress Disorder

[www.ptsd.va.gov](http://www.ptsd.va.gov)

### VA Returning Service Members (OEF/OIF) Web Site

[www.oefoif.va.gov](http://www.oefoif.va.gov)

### VA Office of Public Health and Environmental Hazards (OPHEH)

OPHEH includes the Environmental Epidemiology Service and the War Related Illness and Injury Study Centers program.

[www.publichealth.va.gov](http://www.publichealth.va.gov) and [www.warrelatedillness.va.gov](http://www.warrelatedillness.va.gov)

### National Institute on Disability and Rehabilitation Research (NIDRR), Department of Education

[www.ed.gov/about/offices/list/osers/nidrr/index.html](http://www.ed.gov/about/offices/list/osers/nidrr/index.html)

### Defense Centers of Excellence (DCoE) for Psychological Health & Traumatic Brain Injury

This program leads a collaborative effort toward optimizing psychological health and traumatic brain injury (TBI) treatment for the Department of Defense (DoD). The Department of Defense and Veterans Brain Injury Center (DVBIC) is a component of DCoE.

[www.dcoe.health.mil/default.aspx](http://www.dcoe.health.mil/default.aspx)

### Brain Injury Association of America (BIAA)

This national organization serves individuals, families, and professionals touched by traumatic brain injury (TBI).

[www.biausa.org](http://www.biausa.org)

800-444-6443

---

## OFFICE OF PUBLIC HEALTH AND ENVIRONMENTAL HAZARDS

**Environmental Epidemiology Service (EES):** The EES conducts research whose results help health professionals and policymakers, including VA and Congress, improve health care practices and policies for Veterans.

**War Related Illness and Injury Study Centers:** The WRIISCs, pronounced “risks,” offer services to combat Veterans, families, and health care providers on deployment-related health concerns. These services include clinical care, research, risk communication, and educational programs.

## OFFICE OF PATIENT CARE SERVICES

**TBI/Polytrauma System of Care (PSC):** The Department of Veterans Affairs has implemented an integrated nationwide network of care for Veterans and active duty service members recovering from traumatic brain injury and polytrauma. Due to the severity and complexity of their injuries, Veterans and service members with TBI and polytrauma require an extraordinary level of care coordination and integration of clinical and other support services. The PSC includes four Polytrauma Rehabilitation Centers (PRC), 22 Polytrauma Network Sites (PNS), 82 Polytrauma Support Clinic Teams (PSCT), and 48 Polytrauma Points of Contact (PPOC). Polytrauma/TBI Case Management and Care Coordination is integrated throughout the PSC. The PSC is coordinated by the Office of Rehabilitation Service, a part of the Office of Patient Care Services.

Environmental Epidemiology Service  
Office of Public Health and Environmental  
Hazards (13)  
202-266-4695  
800-211-5272

TBI/Polytrauma System of Care  
Rehabilitation Service  
Office of Patient Care Services (11)

Veterans Health Administration  
DEPARTMENT OF VETERANS AFFAIRS  
[www.va.gov](http://www.va.gov)