

**Department of Defense  
Deployment Health Clinical Center**

**Traumatic Brain Injury (TBI)**

<http://www.pdhealth.mil/TBI.asp> (accessed 6/16/2010)

**Background**

A traumatic brain injury (TBI) is defined as a blow or jolt to the head or a penetrating head injury that disrupts the function of the brain. Concussions, also called “closed head injuries”, are a type of TBI. Not all blows or jolts to the head result in a TBI. The severity of such an injury may range from “mild”, i.e., a brief change in mental status or consciousness to “severe”, i.e., an extended period of unconsciousness or amnesia after the injury. TBI can cause a wide range of functional changes affecting thinking, sensation, movement, language, and/or emotions. Some symptoms may appear immediately after the injury and other symptoms may not appear for days or weeks. Because of the nature of the injury and the symptoms, sometimes people may not recognize or admit that they have a problem. In post-concussion/mild TBI patients, recovery time is within weeks/months, but a small percentage have persistent symptoms. Patients with moderate to severe TBI may never fully recover their pre-injury function. The rate of combat-related brain injuries in servicemembers returning from the current conflicts in Iraq and Afghanistan is higher than in previous conflicts. Blast injuries are a significant cause of TBIs. TBI is often associated with severe multiple trauma, post traumatic stress disorder (PTSD) or undiagnosed concussions. Screening patients who are at risk for a TBI is important in order to ensure that TBIs are identified and appropriately treated.

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**Clinical Guidance**

- [Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury \(DCoE\), Fact Sheet Summarizing VA/DoD Evidence Based Clinical Practice Guideline for Management of Concussion/Mild Traumatic Brain Injury, 2009](#)
  
- [VA/DoD Management of Concussion/mild Traumatic Brain Injury Clinical Practice Guideline, Apr 09](#)

- [Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury \(DCoE\), Tips for Treating Chronic Symptomatic Mild Traumatic Brain Injury and Post-Traumatic Stress Disorder](#)
- [Traumatic Brain Injury Coding - Professional Services and Specialty Coding Guidelines Version 3.2, Uniform Biostatistical Utility \(UBU\) 2009](#)
  - [Appendix D - DoD Extender List \(V15.59\)](#)
  - [Appendix G - Special Guidance on Traumatic Brain Injury Coding](#)
- [American College of Emergency Physicians Clinical Policy: Neuroimaging and Decisionmaking in Adult Mild Traumatic Brain Injury in the Acute Setting, Annals of Emergency Medicine Vol 52 No 6, Dec 08](#)
- [Defense and Veterans Brain Injury Center \(DVBIC\) Consensus Conference on the Acute Management of Concussion/Mild Traumatic Brain Injury \(mTBI\) in the Deployed Setting, August 08 \(Updates DVBIC Acute Management of Mild Traumatic Brain Injury in Military Operational Settings Clinical Practice Guideline and Recommendations, Dec 06\)](#)
- [Updated Mild Traumatic Brain Injury \(mTBI\) Clinical Guidance in Non-Deployed Medical Activities, May 08](#)
- [Nursing Management of Adults with Severe Traumatic Brain Injury, American Association of Neuroscience Nurses \(AANN\) Clinical Practice Guideline Series, 2008](#)
- [DASD \(FHP&R\) Memo, Clinical Guidance for Mild Traumatic Brain Injury \(mTBI\) in Non-Deployed Medical Activities, 29 Oct 07](#)
- [Brain Trauma Foundation, TBI Treatment Guidelines](#)
  - Guidelines for the Management of Severe Traumatic Brain Injury, 3rd edition, 2007
  - Guidelines for Prehospital Management of Traumatic Brain Injury, 2nd edition, 2007
  - Guidelines for the Surgical Management of Traumatic Brain Injury, 2006
  - Guidelines for Field Management of Combat-Related Head Trauma, 2005
  - Guidelines for the Acute Medical Management of Severe Traumatic Brain Injury in Infants, Children, and Adolescents, July 2003
- [CDC, Heads Up: Brain Injury in Your Practice Tool Kit Jan 07](#)
  - [Facts for Physicians About Mild Traumatic Brain Injury Jan 07 \(MTBI\)](#)
- [CDC, Explosions and Blast Injuries: A Primer for Physicians](#)
- [Journal of the American Osteopathic Association Vol 106 No 5 May 2006, Mechanism-of-Injury Approach to Evaluating Patients with Blast-Related Polytrauma](#)
- [Defense and Veterans Head Injury Center \(DVBIC\), Concussion/mTBI Screening Page](#)

#### Policies and Directives

##### **DoD/Joint Forces**

- [HA Memorandum, Baseline Pre-deployment Neurocognitive Functional Assessment – Interim Guidance, 28 May 08](#)
- [DASD \(FHP&R\) Memo, Clinical Guidance for Mild Traumatic Brain Injury \(mTBI\) in Non-Deployed Medical Activities, 29 Oct 07](#)

- [HA Policy 07-030 Traumatic Brain Injury: Definition and Reporting, 1 Oct 07](#)
- [ASD\(HA\) Memorandum, Consolidation of Traumatic Brain Injury Initiatives in the Department of Defense, 23 Mar 07](#)
- Multi-National Corps-Iraq (MNC-I) mTBI Policies
  - [Medical Directive for Mild Traumatic Brain Injury \(mTBI\) Policy, 7 May 08](#)
  - [MNC-I Policy on Mild Traumatic Brain Injury, 6 May 08](#)
    - [Enclosure 1 – Primary Care Management of Concussion in a Deployed Setting](#)
    - Enclosure 2 – Military Acute Concussion Evaluation (MACE) - The MACE supplies can be ordered by contacting the Defense and Veterans Brain Injury Center (DVBIC) Headquarters at 1-800-870-9244 or by using their [Contact Us](#) form.
    - [Enclosure 3 – Sample Concussion/m-TBI Profile](#)
    - [Patient Information Sheet for mTBI](#)

#### **Army**

- [Army Times Article, Army Issues New Guidelines for TBI Care, 16 Jul 08](#)
- [OTSG/MEDCOM Policy Memo 08-018, Screening for Post-Traumatic Stress Disorder \(PTSD\) and mild Traumatic Brain Injury \(MTBI\) Prior to Administrative Separations, 19 May 08](#)
- [ALARACT 153/2007 Announcement of Army Mild Traumatic Brain Injury \(MTBI\)/Post Traumatic Stress Disorder \(PTSD\) Awareness and Response Program, DTG 110703Z JUL 07](#)

#### **Navy/Marines**

- [BUMED Notice 6310, Interim Guidance for Implementation of Baseline Pre-Deployment Neurocognitive Functional Assessments, 8 Sep 09](#)
- [BUMED Memorandum, Policy Guidance for Traumatic Brain Injury \(TBI\): Definition and Reporting, 13 Dec 07](#)

#### **Veterans Administration**

- [Department of Veteran Affairs. 38 CFR Part 4, Schedule for Rating Disabilities: Evaluation of Residuals of Traumatic Brain Injury \(TBI\). Federal Register, 73\(2\). Washington D.C., January 3, 2008, Amendment \(final\): Federal Register 73\(185\), September 23, 2008: 54693-54708.](#) (This document amends the Department of Veterans Affairs (VA) Schedule for Rating Disabilities by revising the portion of the Schedule that addresses neurological conditions and convulsive disorders. The effect of this action is to provide detailed and updated criteria for evaluating residuals of traumatic brain injury (TBI).)
- [VHA Directive 2007-013, Screening and Evaluation of Possible Traumatic Brain Injury in Operation Enduring Freedom \(OEF\) and Operation Iraqi Freedom \(OIF\) Veterans, 13 Apr 07](#)
- [Veterans Health Administration, Under Secretary for Health's Information Letter \(IL 10-2006-004\), Screening and Clinical Management of Traumatic Brain Injury, 25 Jan 06](#)

#### **Fact Sheets**

Veterans Health Administration Materials for Health Care Providers and Patients on Traumatic Brain Injury

- [Traumatic Brain Injury, Quick Guide \(Provider\) 29 Aug 08](#)
- [Traumatic Brain injury, Pocket Card \(Provider\) 29 Aug 08](#)
- [Traumatic Brain Injury, Quick Guide \(Patient/Family\) 30 Apr 08](#)
- [Traumatic Brain Injury, Pocket Card \(Patient/Family\) 30 Apr 08](#)

#### DoD Force Health Protection and Readiness Fact Sheets

- [Traumatic Brain Injury \(TBI\) Educational Sheet](#)
- [TBI & PTSD Quick Facts \(Combat Trauma Quick Facts\)](#)
- [Post-Traumatic Stress Disorder \(PTSD\) and Traumatic Brain Injury \(TBI\) Quick Facts, Jun 07](#)

#### Army Proponency Office for Rehabilitation and Reintegration

- [Traumatic Brain Injury \(TBI\) Fact Sheet](#)
- [Concussion Information - Not for Acute Period Brochure, 25 Nov 08](#) ((For use >1 month after injury or at Post Deployment Health Assessment /Reassessment))
- [Concussion Information for the Time of Injury \(Acute\) Brochure, 18 Oct 08](#)
- [Automated Neuropsychological Assessment Metrics \(ANAM\) Brochure](#)
- [US Army Medical Department, Frequently Asked Questions: Traumatic Brain Injuries, 25 Feb 09](#)
- [Brain Injury Association of America Fact Sheets](#)
- [CDC Traumatic Brain Injury Fact Sheets](#)
- [National Institute of Neurological Disorders and Stroke Booklet, Traumatic Brain Injury: Hope through Research](#)
- [Defense and Veterans Head Injury Center \(DVBIC\), Blast Injury Page](#)
- [Glossary of Brain Injury Terms](#) (A listing of terms commonly used when describing brain injury and consequential rehabilitation. Located on the Florida Institute for Neurologic Rehabilitation, Inc. Web site under Resources.)
- [Vision Center of Excellence, FAQs - Traumatic Brain Injury \(TBI\) Effect on Vision and Treatment Options](#)

#### Forms and Measures

- [Defense and Veterans Head Injury Center \(DVBIC\), Concussion/mTBI Screening Page](#)
  - Neurocognitive Assessment Tool (NCAT) – Screening tool administered as baseline pre-deployment neurocognitive assessment. The goal of the NCAT program is to enhance the assessment of service members post concussion/mTBI and to provide additional information for treatment and return to duty decisions.
  - Military Acute Concussion Evaluation (MACE) - Screening test designed for the acute evaluation of concussion. [MACE Information Paper 20 Mar 09](#)
- [Brief Traumatic Brain Injury Survey \(BTBIS\)](#) (3 Question DVBIC TBI Screening Tool)
- [Automated Neuropsychological Assessment Metrics \(ANAM\)](#) (ANAM is a computer-based tool designed to detect speed and accuracy of attention, memory, and thinking ability. It is being conducted prior to deployment and can be used to identify and monitor changes in function. It does not diagnose any medical condition. The results may help healthcare staff compare a Service Member's speed and accuracy of attention, memory, and thinking ability before and after an injury.)

- [VA Traumatic Brain Injury Disability Evaluation Worksheet](#)

#### Other Related Information

- [Military Health System, Department of Defense Numbers for Traumatic Brain Injury Web Page](#)
- [Tests Boost Post-Blast Screening for Mild TBI, FHP&R Magazine, Vol. 3 Issue 4, 2009](#)
- [VA Polytrauma Rehabilitation Family Education Manual](#)
- [VA Traumatic Brain Injury: A Guide for Patients, 8 Aug 08](#)
- [Department of Veterans Affairs Office of Inspector General Follow-Up Healthcare Inspection, VA's Role in Ensuring Services for Operation Enduring Freedom/Operation Iraqi Freedom Veterans after Traumatic Brain Injury Rehabilitation, 1 May 08](#)
- [Defense Health Board Presentation, TBI Family Caregiver Program Update, 23 Apr 08](#)
- [GAO Report 08-615, Mental Health and Traumatic Brain Injury Screening Efforts Implemented, but Consistent Pre-Deployment Medical Record Review Policies Needed. May 08](#)
- [Brain Trauma in Iraq, Technology Review, May/June 2008 \[Part I\]\(#\) and \[Part II\]\(#\)](#)
- [GAO Report, VA Health Care Mild Traumatic Brain Injury Screening and Evaluation Implemented for OEF/OIF Veterans, but Challenges Remain, Feb 08](#)
- [The Army Surgeon General Traumatic Brain Injury \(TBI\) Task Force \(includes Report 17 May 07 and Summary of Recommendations 17 Jan 08\)](#)
- [Traumatic Brain Injury among Members of Active Components, U.S. Armed Forces, 1997-2006, AMSA Medical Surveillance Monthly Report, Vol 14 No 5, Aug 07](#)
- [Armed Forces Epidemiological Board \(AFEB\) Recommendation 2006-02: Traumatic Brain Injury in Military Service Members, 11 Aug 06](#)
- [Department of Veterans Affairs Office of Inspector General Healthcare Inspection, Health Status of and Services for Operation Enduring Freedom/Operation Iraqi Freedom Veterans after Traumatic Brain Injury Rehabilitation, 12 Jul 06](#)
- [Traumatic Brain Injury in the War Zone, New England Journal of Medicine Vol 352 No 20, 19 May 05](#)
- [Brain Injury Association of America and Defense and Veterans Head Injury Program, A Guide to Selecting and Monitoring Brain Injury Rehabilitation Services](#)

#### Education and Training

- [2010 Military Health System Conference, Way Forward for TBI Care and Initiatives, 26 Jan 10](#)
- [Dot Mil Docs 101: Brain Injury in Theater, 9 Mar 10](#) (An Military Health System audio broadcast in which the Director of the Defense and Veterans Brain Injury Center (DVBC) talks about a new policy for the management of concussion in theater, and gives an update on DoD TBI research and education programs.)
- [Dot Mil Docs100: Concussions, 4 Mar 10](#) (An Military Health System audio broadcast in which the Director of the National Intrepid Center of Excellence, discusses concussions: their signs and symptoms, treatment methods, and how the DoD screens service members for them.)

- [Provider Brief on VA/DoD Clinical Practice Guideline for the Management of Concussion/mTBI, 2009](#)
  - [Navy and Marine Corps Public Health Conference Presentation, Traumatic Brain Injury and Care Coordination, Mar 09](#)
  - [Defense and Veterans Brain Injury Center \(DVBIC\) Provider Training Web Page](#)
  - [Dot Mil Docs 48: Traumatic Brain Injury & Suicide Prevention, 3 Mar 09](#)  
(Webcast interview of Director, Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury who discusses traumatic brain injury and suicide prevention.)
  - [Army Traumatic Brain Injury Program PowerPoint Briefing 25 Feb 09 - Prepared for Brain Injury Awareness Month by Army Proponency Office for Rehabilitation and Reintegration](#)
  - [TRICARE Pilot Education Program for Civilian Providers on PTSD and TBI \(Offers 17 Continuing Education Units. Direct care providers can take advantage of this CME educational opportunity through their existing MHS Learn accounts.\)](#)
  - [Army PTSD/mTBI Chain Teaching Program](#)
    - [Mild Traumatic Brain and Post Traumatic Stress Disorder Facilitator's Guide, 2007](#)
  - [2007 MHS Conference Presentation, Traumatic Brain Injuries: Pathophysiology, Treatment and Prevention](#)
  - [Center of Excellence for Medical Multimedia \(CEMM\), Traumatic Brain Injury: The Journey Home](#)
  - [Defense and Veterans Brain Injury Center \(DVBIC\) Documentary, Survive Thrive and Alive: Understanding Traumatic Brain Injury, 07](#)
  - [Centre for Neuro Skills \(CNS\), CEU Course Mild Traumatic Brain Injury \(MTBI\): Identification, Assessment and Treatment](#)
  - [National Database of Educational Resources on Traumatic Brain Injury](#)
  - [Presentations from 2<sup>nd</sup> Federal TBI Interagency Conference, 9-11 Mar 06](#) including
    - [TBI During Wartime: The Afghanistan and Iraq Experience](#)
    - [Incidence and Neuropsychiatric Sequelae of Traumatic Brain injury: Implications for the Military](#)
- PowerPoint Presentation to Armed Forces Epidemiological Board Meeting, 30 Nov 04  
[VA, Veterans Health Initiative Independent Study Course, Traumatic Brain Injury, Jan 04](#)  
[MedlinePlus, Head and Brain Injuries](#)  
[Florida Institute for Neurologic Rehabilitation, Inc.](#) Educational Booklets (Located on Resources Page)
- Understanding Brain Injury I Acute Hospitalization – A Guide for Family and Friends
  - Understanding Brain Injury II Neurologic Rehabilitation – An Educational Guide
- [Brain Injury Dialogues](#) (The goal of this documentary film is to educate the general public about brain injury and to provide brain injury survivors, their families and caregivers with accurate, sympathetic and empowering depictions of what living with a brain injury can be like.)

Research

- [Department of Veterans Affairs Health Services Research and Development Service, The Assessment and Treatment of Individuals with History of Traumatic Brain Injury and Post-Traumatic Stress Disorder: A Systematic Review of the Evidence, Aug 09](#)
- [Explosive Blast Neurotrauma, Abstract. Journal of Neurotrauma, Vol 26 Issue 6: 8 Jun 09](#)
- [VA Information Sheet, Introducing Two New VA Initiatives on Traumatic Brain Injury in Veterans, Mar 09](#)(Traumatic Brain Injury Veterans Health Registry and National Health Study for a New Generation of US Veterans/The MIND Study (Markers for the Identification, Norming, and Differentiation of TBI and PTSD)
- [Special Issue of The Journal of Head Trauma Rehabilitation, Devoted to TBI in the Military, Vol 24 Issue 1, Jan/Feb 09](#)
- [Institute of Medicine, Gulf War and Health Reports Volume 7 Long-Term Consequences of Traumatic Brain Injury, 2009](#)
- [VA Office of Research and Development Program Announcement Traumatic Brain Injury, 17 Jun 08](#) (Seeking scientifically meritorious research proposals addressing issues concerning TBI. Research proposals may be submitted through FY 2012 for any of the regular merit review receipt dates as noted in this announcement.)
- [Mild Traumatic Brain Injury in US Soldiers Returning from Iraq, Article in New England Journal of Medicine, Vol 358:453-463, 31 Jan 08](#)
- [Disentangling Mild Traumatic Brain Injury and Stress Reactions, Editorial in New England Journal of Medicine, Vol 358: 525-527, 31 Jan 08](#)
- [Traumatic Brain Injury National Data Center](#) (The Traumatic Brain Injury National Data Center (TBINDC) at Kessler Medical Rehabilitation Research and Education Center is the coordinating center for the research and dissemination efforts of the Traumatic Brain Injury Model Systems (TBIMS) program funded by the National Institute on Disability and Rehabilitation Research (NIDRR). The TBI Model Systems consist of 16 comprehensive systems of care distributed throughout the United States that conduct innovative research and provide "model" care to persons who experience traumatic brain injury.)
- [National Institute on Disability and Rehabilitation Research \(NIDRR\)](#)
- [Rehabilitation Research and Training Center \(RRTC\) on Community Integration of Persons with Traumatic Brain Injury \(TBI\), TBI Community Web Site](#) (RRTC was awarded to researchers at TIRR (The Institute for Rehabilitation and Research) and Baylor College of Medicine by the National Institute on Disability and Rehabilitation Research (NIDRR). Its mission is to ensure that all those affected by TBI, including traditionally under-served populations, have access to information, resources, and services that maximize participation in their communities and that treating professionals have the necessary information to meet the needs of persons with TBI.)
- [Defense and Veterans Brain Injury Center, Clinical Research](#)
- [VA Brain Rehabilitation Research Center](#)

- [Northeast Cognitive Rehabilitation Research Network \(NCRRN\)](#)
- [ClinicalTrials.gov, Traumatic Brain Injury Research](#) (ClinicalTrials.gov provides regularly updated information about federally and privately supported clinical research in human volunteers.)
- [Institute of Medicine Report, Evaluating the HRSA \(Health Resources and Services Administration\) Traumatic Brain Injury Program, 1 Mar 06](#)
- [Military Health System Publication Search Web Page](#) (Click on Traumatic Brain Injury)
- [DoD Blast Injury Research Program](#)

## Related Links

### Federal

- [Defense Centers of Excellence For Psychological Health & Traumatic Brain Injury](#)
  - [DCoE Outreach Center](#)
- [Defense and Veterans Brain Injury Center \(DVBIC\)](#)
- [Wounded Warrior Resource Center National Resource Directory TBI Page](#)
- [Army Proponency Office for Rehabilitation and Reintegration](#)
- [USUHS Center for Neuroscience and Regenerative Medicine](#)
- [Army Knowledge on Line \(AKO\) Army Neuropsychology Page](#)
- [afterdeployment.org](#)
- [Center of Excellence for Medical Multimedia \(CEMM\), Traumatic Brain Injury \(TBI\) - The Journey Home](#) (Provides information on TBI for patients, family members, and caregivers. Topics include types and symptoms of brain injury, TBI treatment and recovery, and helpful insights about the potential long-term effects of brain injury.)
- [Army MEDCOM, Warfighter Brain Health Portal](#)
- [VA Polytrauma Centers](#)
  - [Palo Alto](#)
  - [Tampa](#)
  - [Minneapolis](#)
  - [Richmond](#)
- [Centers for Disease Control and Prevention \(CDC\) - TBI](#)
- [Health Resources and Services Administration \(HRSA\) MCHB Federal TBI Program](#)
- [National Institute of Neurological Disorders and Strokes \(NINDS\) – TBI Page](#)
- [America's Heroes at Work](#) (Department of Labor project that focuses on the employment challenges of returning service members living with Traumatic Brain Injury (TBI) and/or Post-Traumatic Stress Disorder (PTSD)).

### National

- [National Association of State Head Injury Administrators \(NASHIA\)](#)
- [National Resource Institute for Traumatic Brain Injury](#)
- [Brain Injury Association of America](#)
- [Brain Trauma Foundation](#)
- [National Brain Injury Research, Treatment, and Training Foundation \(NBIRTT\)](#)
- [North American Brain Injury Society](#)
- [National Disability Rights Network \(NDRN\)](#)

### State

- [Brain Injury Association of America Chartered State Affiliates](#)

### Other



- [Brainline.org](#) (A service of WETA, the public TV and radio station in Washington, DC and funded by Defense and Veterans Brain Injury Center)
- [Centre for Neuro Skills \(CNS\)](#)
- [International Brain Injury Association](#)
- [International Brain Research Foundation, Inc. \(IBRF\)](#)
- [Kessler Medical Rehabilitation Research and Education Corporation \(KMRREC\)](#)
- [The Rehabilitation Research and Training Center \(RRTC\) on Community Integration of Persons With Traumatic Brain Injury](#)
- [National Rehabilitation Information Center \(NARIC\)](#)