DVBIC Traumatic Brain Injury Resources

DVBIC’s CLINICAL RECOMMENDATIONS (http://dvbic.dcoe.mil/clinical-tools-providers-mild-tbi):

- Management of Headache Following Concussion/mTBI: Guidance for Primary Care Management in Deployed and Non-Deployed Settings (February 2016) (Link)
  - Includes state-of-the-science products that can support the diagnosis, evaluation and treatment of post-traumatic headache. You can access recommendations to guide treatment in deployed and non-deployed settings.

- Management of Sleep Disturbances Following Concussion/Mild TBI: Guidance for Primary Care Management in Deployed and Non-Deployed Settings (June 2014) (Link)
  - Provides guidance to help primary care managers assess and manage sleep disturbances associated with mild TBI. Includes specific recommendations for managing symptoms of insomnia, circadian rhythm sleep-wake disorder and obstructive sleep apnea.

- Progressive Return to Activity Following acute Concussion/Mild TBI: Guidance for the Primary Care Manager in Deployed and Non-Deployed Settings (January 2014) (Link)
  - Provides an initial framework for gradually increasing service member activity following mild TBI; for use with patients in the acute (0-7 days) recovery period as a self-guided staged recovery approach.

- Progressive Return to Activity Following acute Concussion/Mild TBI: Guidance for the Rehabilitation Provider in Deployed and Non-Deployed Settings (January 2014) (Link)
  - Provides details for rehabilitation providers in the management of service members who have sustained mild TBI and demonstrate persistent post-concussive symptoms; includes guidance for a clinician-supervised, six stages of the recovery process.

- Neuroimaging Following Mild TBI in the Non-Deployed Setting (July 2013) (Link)
  - Offers guidance for a standard approach for neuroimaging from the acute (0-7 days) through sub-acute (8-89 days) and chronic (>90 days) stages following mild TBI in the non-deployed setting; includes recommendations for CT, MRI or advanced neuroimaging approaches.
• Assessment and Management of Visual Dysfunction Associated with Mild TBI (January 2013) (Link)
  o Provides an approach to evaluating visual dysfunction following mild TBI and offers guidance regarding referral for further eye or visual evaluation and care.

• Assessment and Management of Dizziness Associated with Mild TBI (September 2012) (Link)
  o Provides an approach to evaluate dizziness following mild TBI and guidance regarding referral for further vestibular evaluation and management.

• Neuroendocrine Dysfunction Screening Post Mild TBI (March 2012) (Link)
  o Provides an approach to identifying patients with mild TBI who present with symptoms of neuroendocrine dysfunction (NED), and recommendations for NED serum screening.

DVBIC’s CLINICAL TOOLS (http://dvbic.dcoe.mil/clinical-tools-providers-mild-tbi):

• Military Acute Concussion Evaluation (Link)
  o The MACE is a concussion screening tool for the acute assessment of service members involved in a potentially concussive event.

• Concussion Management Algorithm (Link)
  o The Concussion Management Algorithm is a tool for all levels of providers on the assessment, evaluation and treatment of concussion in the deployed setting.

• VA/DoD Clinical Practice Guideline: Management of Concussion/Mild Traumatic Brain Injury (Link)
  o This guideline describes the critical decision points in the management of concussion/mild TBI and provides clear and comprehensive evidence-based recommendations to improve patient outcomes and local management of patients with concussion/mild TBI.

• ICD10 Coding Guidance for Traumatic Brain Injury within the Military Health System (Link)
  o This clinical reference product provides guidance to help facilitate consistent and accurate coding for TBI diagnoses and related symptoms and conditions.

DVBIC’s RESEARCH REVIEWS (http://dvbic.dcoe.mil/tbi-research-reviews):

• Amyotrophic Lateral Sclerosis and Traumatic Brain Injury (Link)
  o This information paper summarizes the scientific literature about the association of traumatic brain injury (TBI) and amyotrophic lateral sclerosis (ALS). ALS, also known as Lou Gehrig’s disease, is a progressive neuromuscular disease that leads to muscle weakness and atrophy. A PubMed database search produced 12 studies and one
meta-analysis relating to ALS and TBI. Overall, the evidence supporting a link between TBI and later ALS diagnosis is inconclusive. ALS is a relatively rare condition, so analyses of the risk factors contributing to the illness are inherently difficult.

- **Misuse and Abuse of Alcohol After Traumatic Brain Injury** (Link)
  
  - This research review summarizes relevant scientific literature addressing alcohol use disorder (AUD) after TBI. Data from both civilian and military or veteran studies are conflicting regarding the impact of TBI on subsequent risk of alcohol misuse or abuse. Civilian studies show that alcohol use is typically lower during the first year after injury than prior to injury. Among military and veteran populations, some studies suggest that the risk of AUD is increased after military-related TBI, although results are not consistent. Posttraumatic stress disorder and combat exposure are also associated with alcohol misuse. Additional controlled studies are needed to determine the impact of social, medical, psychological and environmental factors.

- **Mild Traumatic Brain Injury and Posttraumatic Stress Disorder** (Link)
  
  - This research review provides an overview of the topic of comorbid mild TBI and posttraumatic stress disorder (PTSD). This review focuses on symptoms, diagnosis, and treatment of PTSD and mild TBI symptoms in patients with mild TBI history. While it can be difficult to differentiate symptoms of mild TBI from PTSD symptoms, especially months or years after the injury event, this review aims to present information relevant to understanding these often complex cases.

- **Traumatic Brain Injury, Irritability, and Aggression** (Link)
  
  - This research review summarizes recent developments in the scientific literature on relationships between TBI, irritability, and aggressive behavior. Irritability and aggressive behavior can stress family, social, and professional relationships. Aggressive behavior can interfere with employment and rehabilitation and may lead to legal consequences. We describe research findings on prevalence and risk factors for irritability and aggressive behavior in individuals with TBI history. We also discuss risk factors for aggressive behavior in non-clinical military/veteran and civilian populations, and findings regarding TBI and legal involvement potentially due to aggressive behavior. To give the reader a global perspective on aggression, studies included cover all severities of brain injury from mild to severe and penetrating.

- **Acute Management of Intracranial Pressure in Severe Traumatic Brain Injury** (Link)
  
  - This research review provides an update on recent scientific literature regarding the acute treatment of severe closed-head traumatic brain injuries in adults. The three topics discussed here relate to the management of intracranial pressure.
ICP: therapeutic hypothermia, hypertonic saline (HTS) and decompressive craniectomy. Specifically, the research questions considered are: whether therapeutic hypothermia improves patient outcomes; whether HTS is effective at reducing ICP or improving outcomes, and whether it's superior or equivalent to mannitol; and whether decompressive craniectomy improves patient outcomes. While there have been important findings on a number of therapies for acute severe TBI, these three areas were chosen based on their position at the forefront of research inquiry in the past five to 10 years.

- **TBI and Hyperbaric Oxygen Therapy (Summary | State of the Science)**
  - Hyperbaric Oxygen (HBO2) has been proposed to be an alternative therapy for other diseases/injuries, including TBI. For moderate, severe, or penetrating TBI with associated evidence of neurological damage and ongoing injury to the brain through edema, hypoxia, or ischemia, strategies for treatment include ensuring adequate oxygenation to the brain and reducing cellular injury. A recent meta-analysis of randomized controlled trials HBO2 for TBI (of all severities) concluded that HBO2 may reduce the risk of death and improve the level of consciousness in TBI patients, but there is no evidence to support that HBO2 improves their quality of life. The FDA issued a statement in August 2013 that HBO2 treatment hasn’t been clinically proven for a number of conditions, including brain injury.

- **Chronic Traumatic Encephalopathy (Link)**
  - Clarification of the neuropathological and clinical presentation of chronic traumatic encephalopathy (CTE) is critical for determining if there are clinical and pathological stages of progression, relating pathology to clinical symptoms, identifying risk factors, and developing interventions to prevent onset or spread of symptoms and pathology. The purpose of this research review is to summarize the available peer-reviewed scientific literature regarding the definition, epidemiology, risk factors, pathology and clinical manifestations for CTE. A list of specific gaps in our understanding of the disease is provided that, if addressed, could inform the most appropriate prevention recommendations and allow clinicians to more effectively diagnose, manage and treat CTE.

- **Multiple Traumatic Brain Injury / Multiple Concussion (Link)**
  - Prior history of TBI may predispose an individual to increased risk of subsequent TBI, which may result from less force, and lengthier recovery from post-injury symptoms. Activities such as contact sports and military service carry particular risk for multiple TBI. In addition to acute post-injury difficulties, cumulative TBI may increase the risk of chronic cognitive and functional impairment. Conservative management of post-injury symptoms as part of a medically
monitored, progressive plan for returning to activities is recommended for individuals with a history of TBI.