VA/DoD Clinical Practice Guidelines for the Management of Concussion/mTBI and Applications in the VA TBI/Polytrauma System of Care

Linda M. Picon, MCD, CCC-SLP
Senior Consultant, VA Liaison for TBI to the Defense Centers of Excellence Rehabilitation and Prosthetic Services, Veterans Health Administration
Department of Veterans Affairs

Brain Injury Association of Maryland
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Since the release of the original VA/DoD Clinical Practice Guideline (CPG) for the Management of Concussion-Mild Traumatic Brain Injury (mTBI) in 2009, continued research has augmented what is known about mTBI and the complexity of this condition. As a result of this updated understanding and additional information, new strategies for management and treatment of Service members and Veterans diagnosed with mTBI have evolved and been put into practice. This evolution prompted the revised version of the CPG (released Spring 2016) highlighted today.

The VA TBI/Polytrauma System of Care (PSC) was developed in 2005 to respond to the multiple and complex injuries sustained by Service members and Veterans of Operations Enduring Freedom, Iraqi Freedom and New Dawn. This system of care has since grown into 110 sites across the nation providing a full range of services from acute rehabilitation to home, and managing the full spectrum of TBI severity from mild TBI to the most serious injuries sustained in civilian and combat settings. Today we will discuss the practical application of the VA/DoD CPG for mild TBI within the PSC.
Concussion

- Another word for a mild TBI
- The most common form of TBI in the military population
- Results from an external force to the head that makes you feel dazed, confused or ‘see stars’ and may cause you to be briefly ‘knocked-out’ (or lose consciousness).

**Symptoms of concussion typically resolve within days or weeks.**

### Physical
- Headache
- Sleep disturbances
- Dizziness and Balance problems
- Nausea/vomiting
- Fatigue
- Visual disturbances and Light sensitivity
- Ringing in ears

### Cognitive
- Slowed thinking
- Poor concentration
- Memory problems
- Difficulty finding words

### Emotional
- Feeling anxious
- Feeling depressed
- Irritability
- Mood swings
VA/DoD Clinical Practice Guideline
Management of Concussion-mTBI (2016)

• Describes critical decision points in the management of concussion/mTBI
• Formatted as two algorithms and 23 evidence-based recommendations
  – Algorithm A: Initial Presentation
  – Algorithm B: Management of Symptoms
• Based on a comprehensive rigorous evidence review

http://www.healthquality.va.gov
Scope of the CPG for mTBI

• Designed to assist providers in managing or comanaging patients with a history of mTBI
  – 18+ years of age
  – Acute to chronic period post-injury

• Population of interest are Veterans, deployed or non-deployed active duty Service Members, and National Guard and Reserve components eligible for care in the VHA and DoD healthcare delivery systems
Limitations of CPGs

• Based upon the best information available at the time
• Not intended to define a standard of care
• Does not prescribe an exclusive course of management
• Recognizes variations in practice inevitably and appropriately occur
• Every healthcare professional making use of these guidelines is responsible for evaluating the appropriateness of applying them in the setting of any particular clinical situation
The GRADE system  Recommendation Strength

- The strength of a recommendation is defined as the extent to which one can be confident that the desirable effects of an intervention outweigh its undesirable effects.

- The grade of each recommendation is presented as part of a continuum:
  - Strong For (or “We recommend offering this option...”)
  - Weak For (or “We suggest offering this option...”)
  - Weak Against (or “We suggest not offering this option”)
  - Strong Against (or “We recommend against offering this option...”)

![Diagram showing the grading system from Strong against to Strong for]
A. Diagnosis and assessment
B. Management of Co-occurring Conditions
C. Treatment
   Appendix B: Clinical Symptom Management
D. Setting of Care
**Diagnosis and Assessment**

| Strong for | Evaluating patients presenting symptoms or complaints that may relate to initial mTBI presentation |
| Weak for | Use history of mTBI or concussion versus brain damage or patient with mTBI Performed a focused diagnostic workup for specific symptoms |
| Weak against | Use of neuroimaging, serum biomarkers or EEG to establish TBI diagnosis |
| Strong against | Comprehensive Neuropsychological assessment in the first 30 days Use of cognitive examinations such as ANAM, NCAT or ImPACT for routine diagnosis and care |
Assessment and Management

Co-occurring conditions and Behavioral symptoms

- Strong for
  - Assess for psychiatric symptoms/disorders and refer as appropriate
  - Evaluate and manage psychological or behavioral symptoms according to existing CPGs and based upon the nature and severity of symptoms

Weak for

Offer, as appropriate, a primary care, symptom-driven approach for patients with history of mTBI and persistent symptoms

Strong against

Etiology

- Adjusting treatment strategy based on mechanism of injury
- Adjusting outcome prognosis based on mechanism of injury
Symptom Management

**Weak for**

Treatment for headache should be individualized and tailored to the clinical features and patient preferences.

*Refer to Neurology or Pain Clinic, as needed*

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**Headache education**

**Non-pharmacologic interventions**
- PT, CBT
- Integrative medicine

**Pharmacologic interventions based on HA type**
- Tension
- Migraine
Treatment for sleep problems should be individualized and tailored to the clinical features and patient preferences.

Assess sleep patterns, sleep hygiene, diet, physical activity and sleep environment.

Refer to Mental Health, Rehabilitation/PM&R, or Neurology, as needed.
Symptom Management

Tinnitus and Visual Disturbances

No evidence for or against the use of any particular modality for Treatment or tinnitus after mTBI

Treatment of visual symptoms after mTBI
diplopia, accommodation or convergence disorder, visual tracking or photophobia

**Trial of tinnitus management**
- White noise generators
- Biofeedback
- Hypnosis
- Relaxation
- Referral to ENT or Audiology as needed

**Trial of specific visual rehabilitation**
- Pain management
- Controlling environmental lighting
- Referral to Optometry, Ophthalmology/Neuro-Ophthalmology, Neurology or Vision rehabilitation
Symptom Management

Dizziness and Disequilibrium

**Weak for**

Short-term trial of specific vestibular, visual, and proprioceptive therapeutic exercise to assess the individual’s responsiveness to treatment.

*Refer to OT, PT or other vestibular trained care provider, ENT, Neurology*

**Prolonged course of therapy in the absence of improvement is strongly discouraged**

**Non-pharmacologic interventions**

- Therapeutic exercises
- Vestibular, visual and proprioceptive

**Pharmacologic interventions**

Vestibular suppressants for severe symptoms resulting in functional limitations
Refer for structured cognitive assessment or neuropsychological assessment to determine functional limitations and guide treatment.

Refer to Neuropsychology, SLP or OT as available

Caveats

- Cognitive symptoms not resolved within 30-90 days
- Cognitive symptoms refractory to treatment for associated symptoms, e.g.
  - sleep disturbance
  - headache
Symptom Management

Cognitive Symptoms

**Weak for**

Short-term trial of cognitive rehabilitation treatment to assess the individual’s responsiveness to strategy training.

*Refer to cognitive rehabilitation therapists with expertise in TBI*

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**Strategy training**

Instruction and practice on use of memory aids, including AT

Other:

*Psychoeducation*

*CBT*

*MI*

**Suggest AGAINST**

Offering medications, supplements, nutraceuticals or herbal meds for neurocognitive effects

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Prolonged course of therapy in the absence of improvement is strongly discouraged
Setting of Care

For patients with chronic symptoms (>30-90 days) who are refractory to initial treatment in primary care

**Weak against**
- Early and routine referral to specialty care in the majority of patients

**Weak for**
- Consultation and collaboration with locally designated TBI or other applicable specialist
- Referral to case managers within the primary care setting to provide additional psychoeducation, care coordination and support

**No evidence for or against**
- Insufficient evidence to recommend for or against use of interdisciplinary teams to manage patients with chronic symptoms attributed to mTBI
VA Polytrauma/TBI System of Care

• Care of mild TBI/Concussion in the Department of Veterans Affairs
• Individuals with polytrauma require extraordinary level of integration and coordination of medical, rehabilitation, and support services:
  – Brain injury is primary injury that drives care
  – Unique rehabilitation challenges with blast related injuries
    • Higher level of acuity due to severity of injuries
    • Simultaneous treatment of multiple injuries
    • Sequence and integrate multiple therapies to meet patient need
    • Coordinate interdisciplinary team effort with expanded team of consultants

Veterans Health Programs Improvement Act of 2004 – PL 108-422, Sec. 302
Directed VA to designate cooperative centers for clinical care, consultation, research and education activities for complex TBI and Polytrauma
TBI Services across the spectrum

• **Initial focus at onset of OEF/OIF on returning Service members with moderate and severe** TBI, obvious injuries requiring inpatient rehabilitation.

• Increasing number of Service members and Veterans noting multiple symptoms following deployment.
  o Evaluation and treatment was inconsistent.
  o Pressure on DoD and VA to develop a system to address this cohort.

• Collaboration through DVBIC to develop a screening tool to identify possible mild TBI
  o **Deployed by VA April 2007**
Military-related TBI

DoD Numbers for Traumatic Brain Injury Worldwide – Totals

2000-2016 (Q1-Q3)

- Penetrating: 5,045
- Severe: 3,733
- Moderate: 32,434
- Mild: 294,010
- Not Classifiable: 21,826

Total - All Severities: 357,048

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

Prepared by the Defense and Veterans Brain Injury Center (DVBIC) 2000-2016 (Q1-Q3), as of Nov 10, 2016

VHA has screened **1.1 Million Veterans** for possible mild TBI since 2007

Approximately 19% of Veterans screen positive and are referred for a comprehensive evaluation

**From April 2007 to September 30, 2016:**

- 89,318 received confirmed diagnosis of mild TBI
- ~8.4% of the total Veteran population screened receive a TBI diagnosis
Comprehensive TBI Evaluation (CTBIE)

- Face-to-face or telehealth evaluation completed by TBI specialist
- History of patient’s present illness/symptoms
- Focused review of body systems
- Targeted physical exam
- Administration of the “Neurobehavioral Symptom Inventory (NSI)” or other appropriate assessments

- Confirming diagnosis of deployment related TBI
- Develop interdisciplinary treatment plan
- Follow up
1. Patient with persistent symptoms after mTBI

2. Primary care provider builds therapeutic alliance & assesses patient priorities. Completes history & physical exam, including mental status exam, physiological evaluation & symptom attributes (see sidebar 4)

3. Evaluate potential co-occurring disorders or diseases (for example depression, PTSD, sleep dx, musculoskeletal pain or substance use disorders)

4. Determine symptom-based treatment plan

5. Educate patient/family on symptoms and expected recovery

6. Provide early interventions and start treatment (see sidebar 5 and Appendix B in full CPG)

Sidebar 4: System Attributes
- Duration, onset, and location of symptom
- Previous episodes, treatment and response
- Patient perception of symptom
- Impact on functioning
- Factors that exacerbate or alleviate symptoms
Management of Persistent Symptoms
Follow-up and Case Management

Sidebar 6: Case Management

Case managers may:
- Follow-up and coordinate (remind) future appointments
- Reinforce interventions and education
- Address psychosocial issues (financial, family, housing or school/work)
- Connect patient to available resources

6. Consider case management with primary care (see side bar 6)

7. Are symptoms resolved in 90 days?
   - Yes
   - No

8. Reevaluate and start treatment and follow-up as appropriate (see Appendix B in full CPG)

9. If symptoms persist and affect function, consider consulting TBI specialist

10. Did patient respond positively to TBI specialist intervention?
    - Yes
    - No

11. Consider case management with primary care (see side bar 6)

12. Follow-up as needed. Provide encouragement and reinforcement. Monitor for comorbid conditions. Address:
    - Return to work/duty/activity
    - Community participation
    - Family/social issue

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All patients receiving rehabilitation services within the Polytrauma System of Care are assigned a Polytrauma Case Manager

Specialty case management includes

- Coordination of services
- Ongoing evaluation of rehabilitation, psychosocial needs
- Family education and support services
- VA/DoD Coordination – Lead Coordinator services
- Lead in development of Individualize Rehabilitation and Community Reintegration (IRCR) care plan
The Individualized Rehabilitation and Community Reintegration (IRCR) Care Plan

- Required for all Veterans and Service Members receiving rehabilitation for TBI with more than 2 disciplines involved
  - Encourages collaboration amongst Veterans, their families, and providers from diverse disciplines
  - Plan must be communicated to the Veteran in writing, containing:
    - Comprehensive Evaluation
    - Goals focused on physical, cognitive, and vocational functioning to ultimately facilitate community reintegration
    - Details means to access care
    - Type, frequency, duration, and location of all rehabilitative treatments
    - Name of case manager
    - Dates when plan will be reviewed

VHA Handbook 1172.01 Polytrauma System of Care
Psychoeducational Interventions

Provided early, typically by a healthcare provider
Physician, nurse practitioner, physician assistant

- Positive expectation of recovery
  - Reassurance
  - Reattribution
  - Self-care
    - Sleep hygiene
    - Progressive return to activity

- Social reinforcement and military culture
  - Post-deployment adjustment
  - Universality of combat
  - Mental health issues, PTS
Guiding Principles for Treatment

- Recruit Resilience
- Focus on Function
- Build A Team
- Acknowledge Multifactorial Complexities
- Cultivate Therapeutic Alliance
- Promote Realistic Expectations for Recovery

Upcoming publication of the American Speech-Language-Hearing Association (ASHA), Open access
• Portable tool for mild to moderate TBI

• The features
  – A self-assessment tool for measuring symptoms, with feedback and a graph for tracking symptoms over time
  – Symptom relief tools and relaxation exercises
  – Educational materials about concussion and options for treatment by brain injury professionals
  – Immediate access to crisis resources, personal support contacts, or professional healthcare resources

Concussion Coach App
Available in Apple App Store and Google Play
What is “standard of care” for mild TBI?

- Clinical Practice Guidelines (CPG)
  - Developed from best available evidence and consensus opinion for treatment of symptoms following mild TBI
  - First published in 2009 and revised in 2016

- Partnerships and collaboration between
  - Primary Care
  - Post-deployment Community of Practice
  - Rehabilitation
  - Mental Health
  - VA and DoD
Educational materials and resources

- **VA/DoD CPG of mTBI**

- **VA Polytrauma/TBI System of Care**
  - [www.polytrauma.va.gov](http://www.polytrauma.va.gov)

- **Defense Centers of Excellence (DCoE)**

- **Mild Traumatic Brain Injury Rehabilitation Toolkit**

- **Defense and Veterans Brain Injury Center (DVBIC)**
  - DVBIC Patient and Provider Educational Materials, Study manuals
    - [http://dvbic.dcoe.mil/resources](http://dvbic.dcoe.mil/resources)
  - DVBIC Publications List
2016 Clinical Practice Guideline for mTBI and a full reference list can be obtained at:


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TO CARE FOR HIM WHO SHALL
HAVE BORNE THE BATTLE AND
FOR HIS WIDOW, AND HIS ORPHAN
A. LINCOLN