VA/DoD Clinical Practice Guidelines

Management and Rehabilitation of Post-Acute Mild Traumatic Brain Injury

VA/DoD Evidence-Based Practice

Provider Summary

Version 3.0 | 2021

VA/DoD CLINICAL PRACTICE GUIDELINE FOR THE MANAGEMENT AND REHABILITATION OF POST-ACUTE MILD TRAUMATIC BRAIN INJURY

Department of Veterans Affairs

Department of Defense

Provider Summary

QUALIFYING STATEMENTS

The Department of Veterans Affairs and the Department of Defense guidelines are based upon the best information available at the time of publication. They are designed to provide information and assist decision making. They are not intended to define a standard of care and should not be construed as one. Neither should they be interpreted as prescribing an exclusive course of management.

This Clinical Practice Guideline is based on a systematic review of both clinical and epidemiological evidence. Developed by a panel of multidisciplinary experts, it provides a clear explanation of the logical relationships between various care options and health outcomes while rating both the quality of the evidence and the strength of the recommendation.

Variations in practice will inevitably and appropriately occur when clinicians take into account the needs of individual patients, available resources, and limitations unique to an institution or type of practice. 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.

These guidelines are not intended to represent Department of Veterans Affairs or TRICARE policy. Further, inclusion of recommendations for specific testing and/or therapeutic interventions within these guidelines does not guarantee coverage of civilian sector care. Additional information on current TRICARE benefits may be found at www.tricare.mil by contacting your regional TRICARE Managed Care Support Contractor.

Version 3.0 – 2021

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Introduction

The Department of Veterans Affairs (VA) and Department of Defense (DoD) Evidence-Based Practice Work Group (EBPWG) was established and first chartered in 2004, with a mission to advise the Health Executive Committee (HEC) "… on the use of clinical and epidemiological evidence to improve the health of the population …" across the Veterans Health Administration (VHA) and Military Health System (MHS), by facilitating the development of clinical practice guidelines (CPGs) for the VA and DoD populations.(1) Development and update of VA/DoD CPGs is funded by VA Evidence Based Practice, Office of Quality and Patient Safety. The system-wide goal of evidence-based CPGs is to improve patient health and well-being.

In February 2016, the VA and DoD published a CPG for the Management of Concussion-mild Traumatic Brain Injury (2016 VA/DoD mTBI CPG), which was based on evidence reviewed through March 2015. Since the release of that CPG, a growing body of literature has expanded the evidence base and understanding of mild traumatic brain injury (mTBI). Consequently, a recommendation to update the 2016 VA/DoD mTBI CPG was initiated in 2019.

This CPG provides an evidence-based framework for the management and rehabilitation of patients with symptoms attributed to mTBI toward improving clinical outcomes. Successful implementation of this CPG may facilitate:

- Assessing the patient's condition and collaborating with the patient, family, and caregivers to determine optimal management of patient care
- Emphasizing the use of patient-centered care using individual risk factors and event history
- Minimizing preventable complications and morbidity
- Optimizing individual health outcomes and quality of life

The full VA/DoD mTBI CPG, as well as additional toolkit materials including a pocket card and provider summary, can be found at: https://www.healthquality.va.gov/index.asp.

Recommendations

The following evidence-based clinical practice recommendations were made using a systematic approach considering four domains as per the GRADE approach (see Appendix A in the full VA/DoD mTBI CPG). These domains include: confidence in the quality of the evidence, balance of desirable and undesirable outcomes (i.e., benefits and harms), patient values and preferences, and other implications (e.g., resource use, equity, acceptability).

The target population for these recommendations is patients with symptoms attributed to mTBI in the post-acute phase (see Guideline Population in the full VA/DoD mTBI CPG).

Table 1. Recommendations

Topic	Sub-topic	#	Recommendation	Strength[a]	Category[b]
Setting of Care		1.	We suggest a primary care (as opposed to specialty care), symptom-focused approach in the evaluation and management of the majority of patients with symptoms attributed to mild traumatic brain injury.	Weak for	Reviewed, Amended
		2.	There is insufficient evidence to recommend for or against specialized treatment programs to improve morbidity, function, and return to work in patients with persistent symptoms attributed to mild traumatic brain injury.	Neither for nor against	Reviewed, New-replaced
Diagnosis and Assessment		3.	For patients with new symptoms that develop more than 30 days after mild traumatic brain injury, we suggest a symptom-specific evaluation for non-mild traumatic brain injury etiologies.	Weak for	Not reviewed, Amended
		4.	We suggest against using the following tests to establish the diagnosis of mild traumatic brain injury or direct the care of patients with symptoms attributed to mild traumatic brain injury: a. Neuroimaging b. Serum biomarkers c. Electroencephalogram	Weak against	Reviewed, Amended
		5.	We suggest against using computerized post-concussive screening batteries[a] for routine diagnosis and care of patients with symptoms attributed to mild traumatic brain injury.	Weak against	Reviewed, Amended
		6.	We suggest against performing comprehensive neuropsychological/cognitive testing during the first 30 days following mild traumatic brain injury.	Weak against	Reviewed, Not changed
Mild Traumatic Brain Injury and Future Neurocognitive Decline		7.	When counseling patients about the long-term effects of mild traumatic brain injury, there is insufficient evidence to state that single or repeated mild traumatic brain injury increases their risk of future neurocognitive decline.	Neither for nor against	Reviewed, New-added
		8.	When counseling patients about the long-term effects of mild traumatic brain injury, there is insufficient evidence to state that demographic, injury-related clinical, and management factors increase the risk of future neurocognitive decline in patients with symptoms attributed to single or repeated mild traumatic brain injury.	Neither for nor against	Reviewed, New-added

[a] E.g., Automated Neuropsychological Assessment Metrics (ANAM), Neuro-Cognitive Assessment Tool (NCAT), and Immediate Post-Concussion Assessment and Cognitive Testing (ImPACT)

Topic	Sub-topic	#	Recommendation	Strength[a]	Category[b]
Effects of Mild Traumatic Brain Injury Etiology on Treatment		9.	We suggest against adjusting outcome prognosis and treatment strategy based on mechanism of injury.	Weak against	Reviewed, New-replaced
Symptom-based Treatments of Mild Traumatic Brain Injury	*a. Cognitive Symptoms*	10.	We suggest that patients with symptoms attributed to mild traumatic brain injury who present with memory, attention, or executive function problems despite appropriate management of other contributing factors (e.g., sleep, pain, behavioral health, headache, disequilibrium) should be referred for a short trial of clinician-directed cognitive rehabilitation services.	Weak for	Reviewed, Amended
		11.	We suggest against the use of self-administered computer training programs for the cognitive rehabilitation of patients with symptoms attributed to mTBI.	Weak against	Reviewed, New-added
	b. Behavioral Symptoms	12.	We suggest that patients with symptoms attributed to mild traumatic brain injury who present with behavioral health conditions, including posttraumatic stress disorder, substance use disorders, and mood disorders, be evaluated and managed the same whether they have had mild traumatic brain injury or not, according to the relevant existing VA/DoD clinical practice guidelines.	Weak for	Reviewed, Amended
	c. Vestibular and Proprioceptive Symptoms	13.	We suggest that patients with persistent symptoms of dizziness and imbalance attributed to mild traumatic brain injury be offered a trial of specific vestibular rehabilitation and proprioceptive therapeutic exercise.	Weak for	Reviewed, New-replaced
	d. Visual Symptoms	14.	There is insufficient evidence to suggest for or against the use of any particular modality for the treatment of visual symptoms attributed to mild traumatic brain injury such as diplopia, accommodation or convergence deficits, visual tracking deficits and/or photophobia.	Neither for nor against	Reviewed, Amended

Topic	Sub-topic	#	Recommendation	Strength[a]	Category[b]
Symptom-based Treatments of Mild Traumatic Brain Injury (cont.)	*e. Tinnitus*	15.	There is no evidence to suggest for or against the use of any particular modality for the treatment of tinnitus attributed to mild traumatic brain injury.	Neither for nor against	Reviewed, Amended
	f. Exertion-induced Symptoms	16.	There is insufficient evidence to recommend for or against treatments for exertion-induced symptoms/symptom clusters attributed to mild traumatic brain injury.	Neither for nor against	Reviewed, New-added
Interventions with Insufficient Evidence	*a. Complementary and Integrative Health*	17.	There is insufficient evidence to recommend for or against the use of any of the following interventions for the treatment of patients with symptoms attributed to mild traumatic brain injury: a. Acupuncture b. Tai chi c. Meditation d. Mindfulness e. Yoga f. Massage g. Chiropractic therapy h. Cranial electrotherapy stimulation (CES) i. Sensory deprivation tanks	Neither for nor against	Reviewed, New-added
	b. Hyperbaric Oxygen Therapy	18.	We recommend against the use of hyperbaric oxygen therapy for the treatment of patients with symptoms attributed to mild traumatic brain injury.	Strong against	Reviewed, New-added
Interventions with Insufficient Evidence (cont.)	*c. Repetitive Transcranial Magnetic Stimulation*	19.	We suggest against the use of repetitive transcranial magnetic stimulation for the treatment of patients with symptoms attributed to mild traumatic brain injury.	Weak against	Reviewed, New-added

[a] For additional information, see Grading Recommendations in the full VA/DoD mTBI CPG.

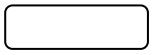
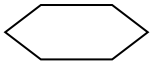
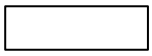
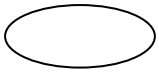
[b] For additional information, see Recommendation Categorization and Appendix D in the full VA/DoD mTBI CPG.

Algorithm

This CPG's algorithm is designed to facilitate understanding of the clinical pathway and decision-making process used in managing patients with symptoms attributed to mTBI. This algorithm format represents a simplified flow of the management of patients with symptoms attributed to mTBI and helps foster efficient decision making by providers. It includes:

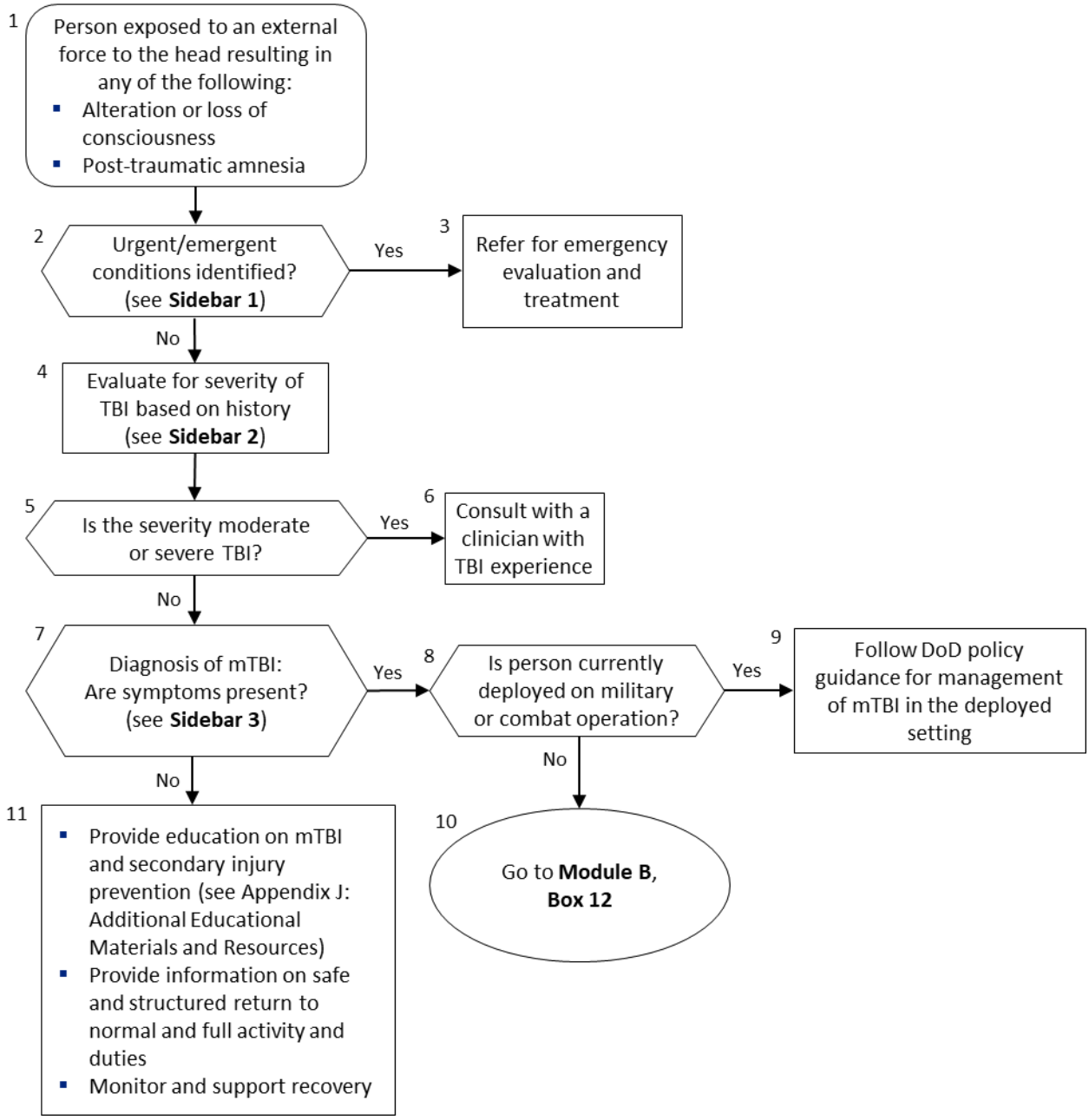
- An ordered sequence of steps of care
- Decisions to be considered
- Recommended decision criteria
- Actions to be taken

The algorithm is a step-by-step decision tree. Standardized symbols are used to display each step, and arrows connect the numbered boxes indicating the order in which the steps should be followed.(2) Sidebars provide more detailed information to assist in defining and interpreting elements in the boxes.

Shape	Description
	Rounded rectangles represent a clinical state or condition
	Hexagons represent a decision point in the process of care, formulated as a question that can be answered "Yes" or "No"
	Rectangles represent an action in the process of care
	Ovals represent a link to another section within the algorithm

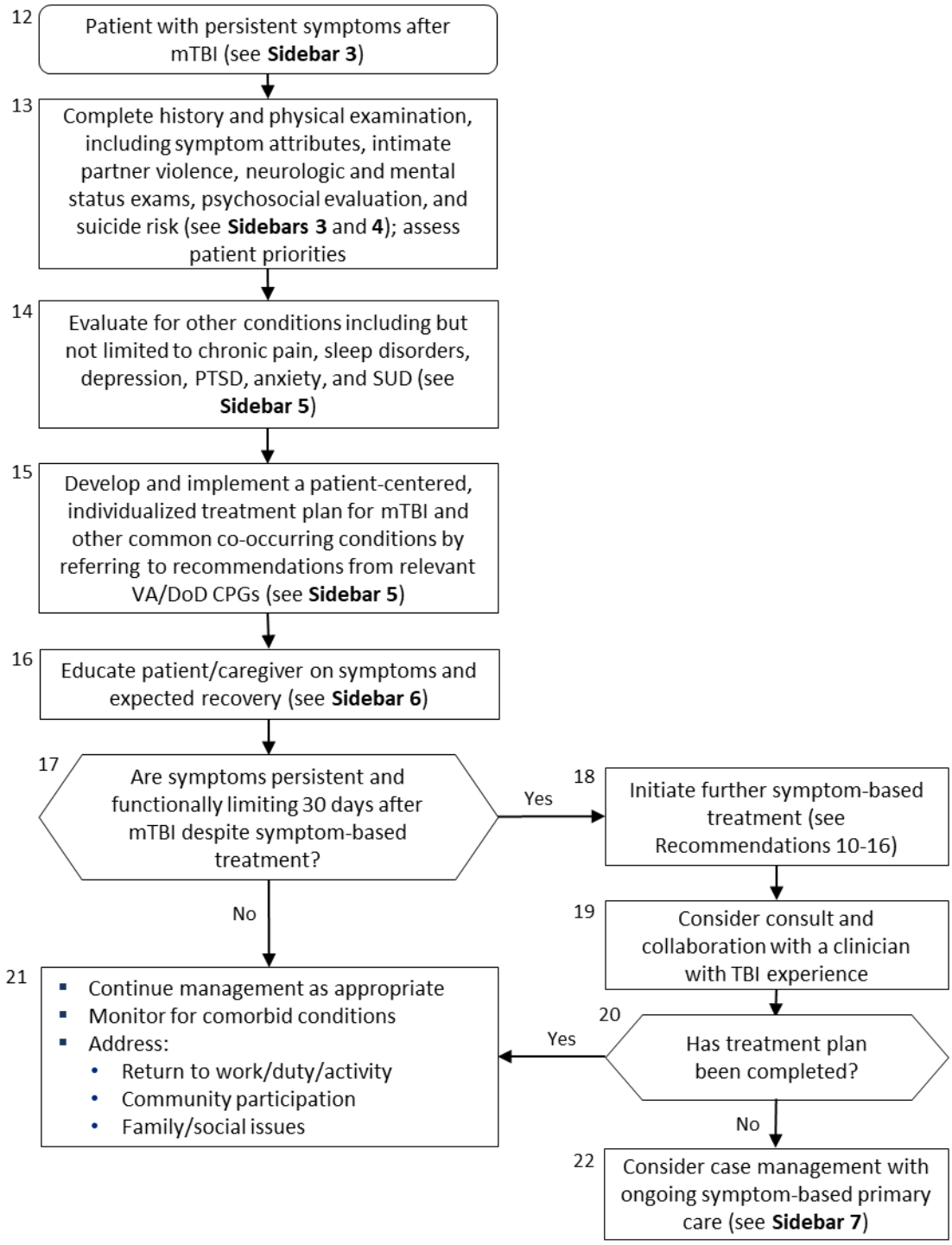
For alternative text descriptions of the algorithm, please refer to Appendix K in the full VA/DoD mTBI CPG.

Module A: Initial Presentation (>7 Days Post-injury)



Abbreviations: DoD: Department of Defense; mTBI: mild traumatic brain injury; TBI: traumatic brain injury

Module B: Management of Symptoms Persisting >7 Days After Mild Traumatic Brain Injury



Abbreviations: CPG: clinical practice guideline; DoD: Department of Defense; TBI: traumatic brain injury; mTBI: mild traumatic brain injury; PTSD: posttraumatic stress disorder; SUD: substance use disorder; VA: Department of Veterans Affairs

Sidebar 1: Potential Indicators for Immediate Referral
• Declining level of consciousness/impaired alertness • Declining neurological exam/focal neurological symptoms • Pupillary asymmetry • Seizures • Repeated vomiting • Motor or sensory deficits • Double vision • Worsening headache • Slurred speech • Marked change in behavior or orientation

Sidebar 2: Classification of TBI Severity[a]			
Criteria	**Mild**	**Moderate**	**Severe**
Structural imaging (see Recommendation 4)	Normal[b]	Normal or abnormal	Normal or abnormal
Loss of consciousness	0 – 30 min	>30 min and <24 hours	>24 hours
Alteration of consciousness/mental state[c]	up to 24 hours	>24 hours; severity based on other criteria	
Post-traumatic amnesia	0 – 1 day	>1 and <7 days	>7 days
Glasgow Coma Scale (best available score in first 24 hours)[d]	13 – 15	9 – 12	<9

[a] If patient meets criteria in more than one category of severity, the higher severity level is assigned

[b] No clinically relevant findings

[c] Alteration of mental status must be immediately related to the trauma to the head; typical symptoms would be: looking and feeling dazed and uncertain of what is happening, confusion, difficulty thinking clearly or responding appropriately to mental status questions, and/or being unable to describe events immediately before or after the injury event

[d] In April 2015, the DoD released a memorandum recommending against the use of Glasgow Coma Scale scores to diagnose TBI (see the memorandum for additional information) (3)

Abbreviations: TBI: traumatic brain injury

Sidebar 3: Possible Post-Concussion Symptoms[a,b]		
Physical Symptoms	**Cognitive Symptoms**	**Behavior/Emotional Symptoms**
• Headache • Dizziness/vertigo • Balance problems • Nausea • Fatigue • Sleep disturbance • Visual disturbance • Sensitivity to light • Hearing difficulties/loss • Tinnitus • Sensitivity to noise	Problems with: • Attention • Concentration • Memory • Speed of processing • Judgment • Executive functions • Speech and language • Visual-spatial function	• Depression • Anxiety • Agitation • Irritability • Impulsivity • Aggression

[a] Symptoms that may develop within 30 days post-injury

[b] Symptoms can be monitored with instruments such as the Neurobehavioral Symptom Inventory (NSI) or Rivermead Post-Concussion Questionnaire (RPCQ)

Abbreviations: mTBI: mild traumatic brain injury

Sidebar 4: Symptom Attributes

- Duration, onset, and location of symptom
- Previous episodes, treatment, and response
- Patient perception of symptom
- Impact on functioning
- Factors that exacerbate or alleviate symptom

Sidebar 5: Relevant VA/DoD CPGs

- VA/DoD Clinical Practice Guideline for the Management of Chronic Insomnia Disorder and Obstructive Sleep Apnea. Available at: https://www.healthquality.va.gov/guidelines/CD/insomnia/index.asp
- VA/DoD Clinical Practice Guideline for the Management of Major Depressive Disorder. Available at: https://www.healthquality.va.gov/guidelines/MH/mdd/
- VA/DoD Clinical Practice Guideline for the Management of Opioid Therapy for Chronic Pain. Available at: https://www.healthquality.va.gov/guidelines/Pain/cot/
- VA/DoD Clinical Practice Guideline for the Management of Posttraumatic Stress Disorder and Acute Stress Reaction. Available at: https://www.healthquality.va.gov/guidelines/MH/ptsd/
- VA/DoD Clinical Practice Guideline for the Management of Substance Use Disorders. Available at: https://www.healthquality.va.gov/guidelines/MH/sud/
- VA/DoD Clinical Practice Guideline for the Primary Care Management of Headache. Available at: https://www.healthquality.va.gov/guidelines/Pain/headache/
- VA/DoD Clinical Practice Guideline for the Management of Chronic Multisymptom Illness. Available at: https://www.healthquality.va.gov/guidelines/MR/cmi/
- VA/DoD Clinical Practice Guideline for the Assessment and Management of Patients at Risk for Suicide. Available at: https://www.healthquality.va.gov/guidelines/MH/srb/

Sidebar 6: Early Intervention

- Integrate patient and caregiver needs and preferences into assessment and treatment
- Provide information and education on symptoms and expected recovery
- Provide reassurance on expectation of positive recovery
- Educate about prevention of further injury
- Empower patient for self-management
- Consider teaching relaxation and stress management techniques as needed
- Recommend limiting use of caffeine/nicotine/alcohol
- Encourage monitored progressive return to normal duty/work/activity/exercise[a]
- Discuss need for consistency with healthy nutrition, exercise, and sleep habits
- Provide information regarding the National Suicide Prevention Lifeline (1-800-273-8255) if appropriate

[a] Provider resources for progressive return to activity (PRA) are available at: https://www.health.mil/About-MHS/OASDHA/Defense-Health-Agency/Research-and-Development/Traumatic-Brain-Injury-Center-of-Excellence/Provider-Resources

Sidebar 7: Case Management

Case managers may:

- Provide coordination of care as outlined in the individualized treatment plan (referrals, authorizations, appointments/reminders)
- Provide advocacy and support for Veteran/Service Member and caregivers
- Reinforce early interventions and education
- Address psychosocial issues (financial, family, housing, or school/work)
- Connect patient to available resources

Reference Guide for Providers, Veterans, and Families: Accessing Mental Health Services after Traumatic Brain Injury

Table 2. Reference Guide for Providers, Veterans, Families: Accessing Mental Health Services after Traumatic Brain Injury

Note: This table was developed by the Mental Health Workgroup of the VHA Committee on the Care of Veterans with Traumatic Brain Injury, February 2021.

Question or Mental Health Need	Mental Health Reference Materials and Websites to Learn More
Military Culture Training	**Military Culture Training for Health Care Professionals: Treatment Resources, Prevention & Treatment** VA TMS 2.0 course # 19335 (*internal VA training site*)
Current suicidal ideations with patient in provider's office	Immediately phone mental health provider in your VA or engage PCMHI in your clinic for assistance in evaluating the patient straightaway. Do not leave the patient unattended while accessing mental health care. Additional guidance can be obtained by calling the Veterans Crisis Line at 1-800-273-8255.
Learning more about how to **evaluate for suicidal ideas** and general warning signs	https://www.mirecc.va.gov/visn19/education/products.asp
Lethal Means Safety and Suicide prevention	Preventing suicide or self-directive violence is critical in the prevention of suicide in Veterans. One aspect is the prevention of lethal means. https://www.mirecc.va.gov/lethalmeanssafety/index.asp
Lethal Means Safety Training for providers	Learning how to discuss lethal means safety with Veterans and their families is critical to the prevention of suicide. This site provides training in how to have these critical discussions. https://www.mirecc.va.gov/visn19/lethalmeanssafety/counseling/
Suicide Risk Screening and Evaluation for providers	Preventing suicide and evaluation for risk is critical. This website describes VHA efforts towards screening evaluation, risk assessment, and education on different levels of risk stratification with evidence-based tools. https://dvagov.sharepoint.com/sites/ECH/srsa (internal Sharepoint site for VA staff)
To refer a Veteran in clinic for treatment of mental health symptoms beyond the comfort/scope of primary care interventions	PACT providers should turn first to their PCMHI, if available. If not, consultation to the mental health Service Line for referrals.
General Facts on TBI exposures in OIF/OEF/OND Veterans: includes information on assessments and treatment recommendations	https://www.polytrauma.va.gov/understanding-tbi/
Neuropsychiatric Manifestations after TBI	The website contains information for Veterans, families, and providers. https://www.mirecc.va.gov/visn6/TBI_education.asp
Substance Use after TBI and Risk Reduction	https://www.mirecc.va.gov/visn19/education/products.asp
Teaching Tools for trainees on understanding neuroanatomy and neuropsychiatry	https://www.mirecc.va.gov/visn6/Tools-Tips.asp

Question or Mental Health Need	Mental Health Reference Materials and Websites to Learn More
PTSD Guides and references for providers	https://www.ptsd.va.gov/professional/index.asp
PTSD Guides and references for Veterans and families	https://www.ptsd.va.gov/family/effects_ptsd.asp
Common Post-deployment **Symptom Education Guides** for patients	https://www.mirecc.va.gov/visn6/Readjustment.asp
Overview of PTSD and violence towards others	https://www.ptsd.va.gov/professional/treat/cooccurring/research_violence.asp
Evaluating risk of violence towards others in context of PTSD	https://www.ptsd.va.gov/professional/treat/cooccurring/assessing_risk_violence.asp
Epidemiological Data on Common Diagnoses and numbers of Veterans treated post-deployment	https://www.publichealth.va.gov/epidemiology/reports/oefoifond/health-care-utilization/index.asp
PTSD Consultation Services with the National Center for PTSD	PTSDconsult@va.gov
General Facts on Chronic Pain in OIF/OEF/OND Veterans	TMS 2.0 (internal VA training site) Course # 13260: chronic pain
Caregiver Education Facts and handouts on multiple medical conditions	This site provides extensive education for caregivers of Veterans with many chronic disease processes. https://www.caregiver.va.gov/publications_resources_topic.asp
Military-Veteran Caregiver and Family Education	This site provides extensive resources for Veteran caregivers and families on a wide variety of psychosocial and medical issues. https://psycharmor.org/caregivers/
CPG for **Patients at Risk for Suicide**	https://www.healthquality.va.gov/guidelines/MH/srb/
CPG for **PTSD**	https://www.healthquality.va.gov/guidelines/MH/ptsd/
CPG for **mild TBI**	https:https://www.healthquality.va.gov/guidelines/Rehab/mtbi/
CPG for **Opioid Therapy for Chronic Pain**	https://www.healthquality.va.gov/guidelines/Pain/cot/
Consensus Conference Recommendations for Treating patients with mild TBI, PTSD, and Pain	https://www.mirecc.va.gov/docs/visn6/Report_Consensus_Conf_Practice_Recommend_TBI_PTSD_Pain.pdf
VA Mobile Phone **APPs**	Apps for the management of multiple mental health conditions and TBI- related symptoms, including the new COVID coach app. https://mobile.va.gov/appstore
Website supports for managing stress in providers, Veterans, community, and families in times of infectious disease outbreaks	https://www.cstsonline.org/resources/resource-master-list/coronavirus-and-emerging-infectious-disease-outbreaks-response https://www.ptsd.va.gov/covid/index.asp

Question or Mental Health Need	Mental Health Reference Materials and Websites to Learn More
Managing general stress in times of COVID-19	This website has resources for managing stress in the pandemic. It contains guidance for the general public, for health care workers, and for employers and community leaders. https://www.ptsd.va.gov/covid/index.asp
Managing PTSD in the context of the COVID-19 pandemic	This website contains recorded lectures from the National Center for PTSD on managing PTSD in the COVID-19 pandemic. https://www.ptsd.va.gov/professional/consult/lecture_series.asp
Coping strategies for building resilience in COVID-19	This Center for Disease Control (CDC) website contains multiple resources for identifying and managing the mental health toll of COVID-19. It includes resources for personal life and for the workplace. https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/stress-coping/index.html

Abbreviations: CDC: Centers for Disease Control and Prevention; CPG: clinical practice guideline; COVID-19: coronavirus disease 2019; OEF: Operation Enduring Freedom; OIF: Operation Iraqi Freedom; OND: Operation New Dawn; PACT: patient-aligned care team; PCMHI: Primary Care Mental Health Integration Team; PTSD: posttraumatic stress disorder; TBI: traumatic brain injury; TMS: Talent Management System; VA: Department of Veterans Affairs; VHA: Veterans Health Administration

Clinical Symptom Management

A. Contents

This section (also included in Appendix G in the full VA/DoD mTBI CPG) serves as a reference guide for symptoms most commonly occurring after a history of mTBI. VA/DoD CPGs on many of these symptoms are available to help guide providers (available at www.healthquality.va.gov). Symptom treatment is not based on the underlying mechanism of injury; instead, it is based on standardized clinical practice for that disorder or diagnosis. Given the complexities of war-related injury, there can be many co-occurring conditions. There is a lack of randomized controlled trials (RCTs) to guide assessment and treatment of these conditions; therefore, providers must use clinical judgment and refer to other VA/DoD CPGs.

B. Introduction

The emergence of behavioral symptoms after mTBI can depend on many factors including pre-injury psychosocial function and/or pre-existing illnesses or conditions, genetic predisposition to neurobehavioral disorders, injury factors, and post-injury psychosocial and health factors. The nature and severity of symptoms, as ascertained in a thorough medical history, should be determined to optimally choose appropriate treatments. A comprehensive treatment plan that integrates psychosocial and pharmacologic interventions is recommended, as there is a paucity of strong evidence for a singular treatment that specifically targets symptoms in this population.

There is a complex relationship among symptoms attributed to mTBI (e.g., headache, sleep disturbances, cognition, mood). It is clinically reasonable to expect that alleviating and improving one symptom may lead to an improvement in other symptoms and symptom clusters. The presence of co-occurring mental health problems (e.g., major depressive disorder [MDD], anxiety disorders, posttraumatic stress disorder [PTSD], substance use disorders [SUD]), that may or may not be etiologically related to the mTBI, should be comprehensively managed.

There are no specific U.S. Food and Drug Administration (FDA) approved pharmaceutical agents for the treatment of post-concussive neurological or behavioral symptoms. Management of behavioral and mental health conditions following mTBI should be guided by CPGs for behavioral conditions (with or without mTBI) and the guidance from the mental health field.

See guidance such as:

- VA/DoD Clinical Practice Guidelines Homepage - www.healthquality.va.gov
- VA National Center for PTSD: Traumatic Brain Injury and PTSD - https://www.ptsd.va.gov/professional/treat/cooccurring/tbi_ptsd_vets.asp
- Psychological Health Center of Excellence (PHCoE) VA/DoD Clinical Practice Guidelines and Clinical Support Tools - https://www.pdhealth.mil/clinical-guidance/clinical-practice-guidelines-and-clinical-support-tools
- VA Health Services Research and Development: Evidence-based Synthesis Program - www.hsrd.research.va.gov/publications/esp/

The Work Group neither reviewed nor endorses the accuracy or clinical utility of other provider resources.

C. Medication

Treatments for difficulties that arise proximately to a concussion should be symptom-based and not specific to the historical traumatic event. Sound clinical judgment with a thorough clinical history, targeted physical exam, and any needed laboratory testing appropriate to the condition are always prudent before prescribing any treatment. If pharmacologic intervention is being considered, following established recommended dosing guidelines for the specific symptoms or conditions is prudent.

Considerations in using medication for treatment of symptoms after brain injury include:

- Avoid medications that lower the seizure threshold (e.g., bupropion, traditional antipsychotic medications) or those that can cause confusion (e.g., lithium, benzodiazepines, anticholinergic agents).
- Before prescribing medications, rule out social factors (e.g., abuse, neglect, caregiver conflict, environmental issues).
- Unless side effects prevail, give full therapeutic trials at maximal tolerated doses before discontinuing a medication trial. Under-treatment is common.
- Some patients with symptoms attributed to mTBI can be more sensitive to side effects. Watch closely for toxicity and drug-drug interactions. Assess regularly for side effects.
- Limit quantities of medications with high risk for suicide. The suicide rate in individuals who have sustained a TBI is higher than in the general population.
- Educate patients and family/caregivers to avoid the use of alcohol or other illicit drugs with the medications.
- Minimize caffeine and avoid herbal or dietary supplements such as “energy” products, as some contain agents that cross-react with prescribed medications (e.g., use with certain psychiatric medications may lead to a hypertensive crisis).

D. Co-occurring Conditions

a. Clinical Guidance

Assess individuals in a primary care setting. Typical screening instruments for co-occurring mental health diagnoses or symptoms include the Columbia Suicide Severity Rating Scale (C-SSRS), Patient Health Questionnaire (PHQ-2 or PHQ-9), the Generalized Anxiety Disorder Scale (GAD-2 or GAD-7), Alcohol Use Disorders Identification Test-Concise (AUDIT-C), and the PTSD Checklist (PCL-5). While these instruments do not diagnose individuals with MDD, anxiety, SUD, or PTSD, they serve to identify individuals who require further assessment. Many of these screening instruments have links to access them within the electronic health record.

It is always critical that the evaluation of individuals with persistent symptoms attributed to mTBI includes an assessment for suicidal and homicidal ideations. If an individual’s history or current distress suggests any suicidal ideas, intent, past attempts, or worsening psychiatric symptoms, consider consulting with, or referring to, a behavioral health provider. Many institutions have mental health teams embedded in primary care for same-day access or have a fast-track referral system for immediate interventions. For individuals who present with an existing and chronic psychiatric disorder, refer to behavioral health services for further follow-up/treatment if indicated.

Individuals with persistent symptoms attributed to mTBI should be re-evaluated for emerging or worsening co-occurring mental health disorders, as clinically indicated.

In individuals with persistent post-concussive symptoms that have been refractory to treatment, consideration should be given to other factors that may be contributing, including unidentified mental health disorders, lack of psychosocial support, negative illness expectations, and compensation/litigation issues. Clinicians should be very careful with any communications with patients regarding possible attributions of physical symptoms to any of these causes and should follow clinical guidelines for the management of persistent unexplained symptoms.

The VA/DoD CPG website has the following guidelines to assist with the management of co-occurring mental health symptoms:

- Suicide[b]
- MDD[c]
- PTSD[d]
- SUD[e]

E. Headache

a. Background

Post-traumatic headaches (PTH) are very common, occurring in 25-78% of individuals following mTBI.(4) They are more frequent in individuals with mild versus moderate or severe TBI,(5) including having a negative correlation between the duration of unconsciousness and incidence of headache in moderate to severe TBI.(6) Posttraumatic headache most frequently resembles tension-type or migraine headaches and can be exacerbated by very mild physical or mental exertion.

For a much more detailed analysis of PTH and guidance on how to manage patients, see the VA/DoD CPG for the Primary Care Management of Headache (2019).[f]

F. Dizziness and Disequilibrium

a. Background

Dizziness and disequilibrium are common symptoms that individuals present with in the primary care settings and may be related to mTBI. They have a range of causes and can be broadly organized into the following disorders: inner ear disorders (peripheral vestibular disorders), central nervous system disorders, psychological disorders, musculoskeletal disorders, and (commonly) idiopathic disorders.

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[b] See the VA/DoD Clinical Practice Guideline for the Assessment and Management of Patients at Risk for Suicide. Available at: https://www.healthquality.va.gov/guidelines/MH/srb/

[c] See the VA/DoD Clinical Practice Guideline for the Management Major Depressive Disorder. Available at: https://www.healthquality.va.gov/guidelines/MH/mdd/

[d] See the VA/DoD Clinical Practice Guideline for the Management of Posttraumatic Stress Disorder and Acute Stress Reaction. Available at: https://www.healthquality.va.gov/guidelines/MH/ptsd/

[e] See the VA/DoD Clinical Practice Guideline for the Management of Substance Use Disorder. Available at: https://www.healthquality.va.gov/guidelines/MH/sud/

[f] See the VA/DoD Clinical Practice Guideline for the Primary Care Management of Headache. Available at: https://www.healthquality.va.gov/guidelines/Pain/headache/

b. Assessment

1. Physical Examination

In individuals with symptoms attributed to mTBI, a description and characterization of their dizziness (e.g., vertigo, lightheadedness, syncope, disequilibrium, confusion), temporal pattern (e.g., seconds, minutes, hours, days), and symptom-provoking activities (e.g., rolling over in bed, bending over, head movement) provides valuable information in establishing a working differential diagnosis. Primary care assessment for vestibular disorders should be done before referring for further vestibular examination and rehabilitation. Observation and patient interview are key elements to the examination and often guide the clinician in determining the plan of care. Evaluation should include a thorough examination of the following:

- Neurologic function
- Orthostatics
- Vision (acuity, monocular confrontation fields, pupils, eye movements, nystagmus)
- Auditory (hearing screen, otoscopic exam)
- Sensory (sharp touch, light touch, proprioception, vibration)
- Motor (strength, coordination)
- Cervical (range of motion)
- Vestibular (static and dynamic visual acuity, positional testing)

Evaluation of functional activities should include sitting and standing balance (e.g., Romberg with eyes open/closed, single-leg stance) and gait (e.g., walking, tandem walking, walking with head turns, and whole-body turning). Once the initial assessment is completed and other causes are eliminated (e.g., vertebral basilar insufficiency, orthostatic hypotension, polypharmacy), referral to a vestibular rehabilitation specialist (i.e., physical therapy or occupational therapy) is recommended for symptom management.

2. Medication Review

A detailed medication history is warranted as numerous medications include dizziness as a potential side effect. The following classes of medications are particularly important to consider: stimulants, benzodiazepines, tricyclics, monoamine oxidase inhibitors, tetracyclics, neuroleptics, anticonvulsants, selective serotonin agonists, beta blockers, and cholinesterase inhibitors. The temporal relationship to the onset of dizziness and the initiation and dosing of these medications should be investigated.

c. Treatment

1. Pharmacologic Treatment

Initiating vestibular suppressants for dizziness may delay central compensation or promote counterproductive compensation;(7, 8) and, while vestibular suppressants may be helpful during the acute period of several vestibular disorders, they are not recommended after concussion.(9) Medications should only be considered if symptoms are severe enough to significantly limit functional activities. Trials of medications should be brief (optimally less than a week), and particular attention should be paid to dosing

and titration due to the effects on arousal, cognition, and memory, and the potential addictive qualities of these medications.(10) Meclizine is the preferred agent, followed by scopolamine and dimenhydrinate. The use of clonazepam, diazepam, or lorazepam is discouraged due to the sedating and addictive qualities of those agents.

2. Non-Pharmacologic Treatment

Non-pharmacologic interventions for posttraumatic dizziness may be useful as an alternative to or in conjunction with pharmacotherapies, although the effectiveness of such interventions is not fully established with mTBI.(11) The efficacy of vestibular and balance rehabilitation has been shown in different, non-TBI populations.(12-14) Patients with vestibular disorders who received customized programs showed greater improvement than those who received generic exercises.(13) Studies utilizing vestibular exercises have shown up to an 85% success rate in reducing symptoms and improving function in the population with peripheral vestibular disorders.(13, 15)

With mTBI, recovery of vestibular lesions is often limited or protracted due to the coexistence of central or psychological disorders.(16) Evidence is limited regarding the benefits of specific vestibular exercises for patients with a history of mTBI and psychological co-occurring symptoms.

Knowledge of canalith repositioning and liberatory maneuvers for the treatment of benign paroxysmal positional vertigo (BPPV) is beneficial for primary care physicians.(17) Clinicians should perform the Dix-Hallpike and supine roll tests to assess for BPPV; radiographic imaging, vestibular testing, and routinely treating BPPV with vestibular suppressant medications is not recommended.(18) In addition, patients with history and clinical examination consistent with BPPV, whose symptoms do not fully resolve after one trial of a canalith repositioning maneuver, may also be sent to a vestibular rehabilitation therapist for further specialized BPPV assessment and treatment.

In cases of persistent dizziness and disequilibrium, a vestibular rehabilitation therapist may also be utilized to execute a more comprehensive vestibular and balance evaluation and treatment program. The types of specialized assessment tools, maneuvers, and exercises to treat dizziness and disequilibrium are beyond the scope of this guideline. Patients with central, functional, and psychological disorders need a coordinated team effort to address the underlying impairments and activity limitations in order to maximize the outcome of vestibular rehabilitation.

If an individual appears to be at fall risk due to symptoms of dizziness and disequilibrium, referral for home evaluation for adaptive equipment should also be considered as a compensatory strategy to limit further injury.

The Office of the Surgeon General (OTSG) Army Toolkit and TBICoE may also provide guidance regarding symptoms of dizziness and vestibular rehabilitation.[g] While these resources may assist PCPs, the Work Group did not review the information contained in these documents. (See Appendix J in the full VA/DoD mTBI CPG.)

[g] Hearing Center of Excellence. Available at: https://hearing.health.mil/For-Providers/Standards-and-Clinical-Practice-Guidelines/COMMON-DIZZINESS-AND-BALANCE-DISORDERS-IN-MILITARY-POPULATIONS

G. Visual Symptoms

a. Background

Vision symptoms, including sensitivity to light, eye fatigue, difficulty focusing, and blurry vision occur acutely in some individuals who sustain mTBI. Most vision symptoms resolve within minutes or hours; however, for those with persistent difficulties, targeted assessments to guide symptom management during the first few weeks after mTBI are most effective.

Primary care providers (PCPs) need to be aware of reasons for an urgent referral to an eye care provider, including: vision loss or decline, diplopia, abnormal pupils, abnormal external eye exam (e.g., evidence of infection or hemorrhage), abnormal visual behavior (e.g., unexpectedly bumping into things), abnormal eye movements (e.g., nystagmus), or acute ocular symptoms (e.g., evidence of trauma, severe eye pain, flashes and/or floaters, severe photophobia). If visual symptoms persist and impact daily function, providers should refer patients to optometry, ophthalmology, neuro-ophthalmology, neurology, and/or vision rehabilitation team.

Higher-order cognitive symptoms (e.g., visual-spatial issues, spatial bias) may be mistaken by either the Veteran, or the clinician, for ocular or vision issues, especially because these cognitive symptoms are usually associated with unawareness of deficit (anosognosia). Occupational therapy vision assessment, or behavioral neurology assessment, may be very helpful in ruling out these symptoms.

b. Assessment and Treatment

In response to persistent vision symptoms, primary care clinicians or others should inquire about how the vision impairment has impacted the individual's daily functioning by asking questions such as, "how have your vision problems impacted school or work such as reading and/or using a computer?" If functional complaints or impairments are evident, the clinician should proceed with a basic eye/vision exam which should include visual acuity (distant and near), monocular confrontational fields, pupils (size/equality/response), eye movements, an external exam (direct illumination of anterior segment), and nystagmus (primary position and gaze evoked). The clinician should also perform a slit lamp exam, if available.

Medications should be evaluated. Drugs that may be associated with vision symptoms include antihistamines, anticholinergics, digitalis derivatives, antimalarial drugs, corticosteroids, erectile dysfunction drugs, phenothiazines, chlorpromazine, indomethacin, and others. Other co-occurring symptoms (e.g., migraines, sleep disturbances, chronic pain, mood disorders, PTSD) may be contributing factors or the source of the vision dysfunction.

If the vision problem is impacting function over time, a referral to a specialist trained in specialized oculomotor assessment (e.g., neuro-ophthalmology, polytrauma blind rehabilitation outpatient specialist, low vision therapist, occupational therapist) should be made to complete a vision screen and functional assessment. If indicated, an eye care provider can complete a comprehensive vision assessment and together with the rehabilitation team can develop a treatment intervention to address the individual's visual complaints and functional deficits.

The types of specialized vision rehabilitation assessment tools and interventions (e.g., vision exercises) to address visual dysfunction related to mTBI are beyond the scope of this guideline. Patients benefit from a coordinated team effort to address the underlying impairments and maximize vision rehabilitation.

Additional resources to support vision care and vision disorders after mTBI can be found through the TBICoE[h] and Vision Center of Excellence[i] websites.

H. Fatigue

a. Background

Fatigue is one of the most common symptoms following mTBI. Fatigue can be a primary effect related to central nervous system dysfunction or a secondary effect of common coexisting disorders in mTBI (e.g., depression, chronic pain, sleep disturbances). Medications, substance use, and unhealthy lifestyle habits may also contribute to fatigue.

b. Assessment and Treatment

A detailed pre- and post-injury history of physical activity, cognitive function, and mental health is important to determine the effects of fatigue in temporal relation to the injury. It is important to review current medications and supplements for possible side effects. Multiple self-assessment scales for fatigue exist, many of which have been studied in other populations. Common fatigue assessment tools used in TBI include the Multidimensional Assessment of Fatigue (MAF), Fatigue Impact Scale (FIS), and the Fatigue Assessment Instrument (FAI). Objective testing (e.g., laboratory evaluation), to exclude other medical conditions contributing to fatigue, should be considered when clinically indicated.

Education is an important component in the management of fatigue. Educational efforts should be focused on the modification of lifestyle factors including a healthy diet, regular exercise, and sleep hygiene. Cognitive behavioral therapy may be a useful management approach for post-traumatic fatigue. Exercise routines should be individualized to maximize benefit and promote a proper ratio of activity and rest.

I. Sleep Disturbance

a. Background

Sleep disturbance is a common complaint of individuals with a history of mTBI.(19) Assessment and treatment of sleep disturbances is similar to individuals without a history of mTBI. In an individual with a history of mTBI, co-occurring conditions (e.g., anxiety, depression, PTSD, chronic pain, headache) can complicate the clinical picture, as many of these conditions can also negatively impact sleep.

See the VA/DoD 2019 CPG on the Management of Chronic Insomnia Disorder and Obstructive Sleep Apnea for more detailed recommendations on assessment and treatment of chronic complaints for sleep disturbance.[j]

[h] Available at: https://health.mil/About-MHS/OASDHA/Defense-Health-Agency/Research-and-Development/Traumatic-Brain-Injury-Center-of-Excellence/Provider-Resources

[i] Available at: https://vce.health.mil/Clinicians-and-Researchers/Clinical-Practice-Recommendations

[j] See the VA/DoD Clinical Practice Guideline for Management of Chronic Insomnia Disorder and Obstructive Sleep Apnea. Available at: https://www.healthquality.va.gov/guidelines/CD/insomnia/index.asp

b. Assessment

Assessing individuals with reported sleep disturbance and its underlying causes is an essential component of the clinical work-up. It is important to attribute symptoms correctly and to identify and treat any co-occurring conditions.

c. Treatment

Treatment will be dependent upon specific sleep disorder diagnosis and etiological cause. For chronic insomnia, the use of non-pharmacologic therapies should be considered a first-line treatment. Pharmacologic treatment of sleep disturbance following mTBI may be complex. For all pharmacologic interventions, providers should weigh the risk-benefit profiles, including toxicity and abuse potential.

J. Cognitive Symptoms

a. Background

Cognitive symptoms are common after mTBI. While symptoms improve within days to several weeks in most situations, cognitive problems in attention, thinking speed, memory, and executive functions may persist for several months or years for some. For those reporting cognitive symptoms for more than 30 days following mTBI, a time-limited trial of cognitive rehabilitation with a focus on psychoeducation and strategies for daily function may facilitate recovery. Persons with persistent or late-emerging cognitive symptoms (e.g., months to years following TBI) may benefit from an integrated and holistic approach to cognitive symptom management, particularly when co-occurring conditions and associated refractory symptoms are present.(20) Because problems with speech and language or spatial function (e.g., spatial neglect) can be mistaken for problems with memory, concentration, or executive function, specific screening for these issues, especially in Veterans with co-occurring stroke risk factors, is important.

Since 2009, the term “polytrauma triad” has been used to describe the higher rate of chronic pain and mental health disorders in those with a history of military-related TBI.(21) These factors can impact daily functioning across multiple domains (i.e., cognitive, emotional, behavioral) and require referral for appropriate management to maximize effectiveness of cognitive rehabilitation. Recent evidence demonstrating that physical (e.g., pain, headache, fatigue),(22) psychological (e.g., PTSD, anxiety, depression),(22) and sleep conditions (23, 24) are significant contributors to cognitive symptoms following mTBI further supports the need for integrated, interdisciplinary management of functional cognitive complaints, including cognitive rehabilitation, particularly in patients with chronic or late-emerging symptoms.

In 2020, Belanger et al. reported “self-efficacy” (i.e., one’s personal perception of one’s abilities and capabilities) as the most potent predictor of cognitive rehabilitation response in a study of Service Members and Veterans following mTBI.(25) As such, developing a therapeutic alliance, establishing positive but realistic expectations, and providing quick wins early in treatment may be critical components of effective, clinician-directed, cognitive rehabilitation. Psychoeducation that is centered on validation of symptoms and understanding their impact on function should include information about the potential contributions of coexisting conditions, and medication side effects, on cognitive dysfunction.

b. Clinical Guidance

A comprehensive evaluation that combines objective, self-report, and ecologically-relevant measures may be necessary to capture the functional impact of cognitive symptoms following mTBI.(26) Practices such as motivational interviewing (27) and goal attainment scaling (28, 29) have been shown to facilitate the development of meaningful treatment goals and plans that align with patient values, preferences, functional needs, and limitations. Assessments and guided interventions that promote active engagement in the treatment process and self-management techniques empower patients to co-manage their recovery and contribute to self-efficacy. Short-term trials of evidence-based cognitive rehabilitation (e.g., 4 – 6 sessions) may provide sufficient information to determine potential benefit from further cognitive rehabilitation. Prolonged treatment trials that are not resulting in improved activity participation, and that perpetuate dependence and a "sick role," are strongly discouraged.

Compensatory training as an individualized, functional intervention can involve adaptive strategies such as environmental modifications to facilitate attention and establishing and practicing new techniques (e.g., organization, note-taking) to support daily functioning, work, and schoolactivities. Compensatory strategy training requires selection of appropriate targets, building skills based on prior knowledge, and training of sufficient intensity and complexity to ensure transfer of learned skills and habits to everyday situations.(30) Cognitive assistive technologies may range from a wristwatch with an alarm function to a multi-function device (e.g., smartphone, tablet). Familiar and commercially available devices are easier to learn and may lead to less abandonment than customized devices. Successful long-term utilization of compensatory strategies and devices ultimately requires specialized evaluation to select the appropriate technique or device (for the person and the situation) and sufficient practice in meaningful, real-life contexts.(31, 32)

Treatment approaches for executive functions that promote self-reflection and self-regulation are suggested to support generalization of treatment gains to community-based activities that lead to functional independence. Mobile applications (e.g., Concussion Coach, PTSD Coach, CBTi) may be beneficial when used in support of a comprehensive treatment approach focused on self-management and real-world benefit. For example, assistive devices and apps for self-management, self-advocacy, health monitoring or journaling, can increase self-awareness and reduce the impact of memory dysfunction on accurate symptom self-monitoring and reporting to medical providers.

K. Persistent Pain

(See also discussion of Headache.)

a. Background

Approximately 40-50% of individuals with a history of mTBI may experience chronic pain.(33) Pain management is similar to individuals without a history of mTBI. However, in individuals with a history of mTBI, the complaint of chronic pain is sometimes interwoven with co-occurring conditions such as sleep disorders, anxiety, MDD, or PTSD.

b. Assessment

Providers may also consult the VA/DoD CPG for Opioid Therapy for Chronic Pain[k] for assessment of persistent pain. Pain management is a priority and thus all individuals presenting with a history of mTBI and complaints of pain should be thoroughly assessed. The underlying cause of the pain should be determined and treated, if possible.

c. Treatment

The use of non-pharmacologic therapies should be considered as first-line. Rehabilitation therapies may be beneficial for the management of pain in individuals with a history of mTBI. The use of opioid agents in chronic pain conditions should be avoided until other avenues of pain control have been given appropriate treatment trials.

Providers may also consult the VA/DoD CPG for the Management of Chronic Multisymptom Illness[l] or the VA/DoD CPG for Opioid Therapy for Chronic Pain[m] for additional strategies to manage persistent pain.

L. Hearing Difficulties

a. Background

Hearing difficulties, including altered acuity and sensitivity to noise, can occur acutely in over half of the individuals who sustain a blast-related mTBI.(34) Hearing difficulties may include tinnitus, sensorineural hearing loss, conductive hearing loss, hyperacusis, and/or central auditory dysfunction.(35) In Operation Iraqi Freedom, in Veterans who experienced blast-related injuries, 38% experienced tinnitus and 62% experienced hearing loss.(35) If not diagnosed, these issues can hinder successful mTBI-related treatment and rehabilitation outcomes for patients.[n] Co-occurring conditions, specifically depression,[o] anxiety, and insomnia,[p] are associated with tinnitus and proper management of these conditions can help improve symptoms of tinnitus.(35)

True abnormalities in central auditory acuity or processing are extremely rare with mTBI. Other causes of problems are also extremely rare and often not related directly to the concussion injury. Pre-injury hearing deficits are common and should be ruled out.

b. Assessment and Treatment

1. Perform an otologic examination.
2. Review medications for agents that may cause ototoxicity.
3. Refer to audiology for testing as part of an interdisciplinary assessment.

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[k] See the VA/DoD Clinical Practice Guideline for Management of Opioid Therapy for Chronic Pain. Available at: https://www.healthquality.va.gov/guidelines/Pain/cot/

[l] See the VA/DoD Clinical Practice Guideline for Management of Chronic Multisymptom Illness. Available at: https://www.healthquality.va.gov/guidelines/MR/cmi/

[m] See the VA/DoD Clinical Practice Guideline for Management of Opioid Therapy for Chronic Pain. Available at: https://www.healthquality.va.gov/guidelines/Pain/cot/

[n] Available at: https://hearing.health.mil/Resources/Education/Conditions-and-Concerns/TBI-and-Hearing-Loss

[o] See the VA/DoD Clinical Practice Guideline for Management of Major Depressive Disorder. Available at: https://www.healthquality.va.gov/guidelines/MH/mdd/

[p] See the VA/DoD Clinical Practice Guideline for Management of Chronic Insomnia Disorder and Obstructive Sleep Apnea. Available at: https://www.healthquality.va.gov/guidelines/CD/insomnia/index.asp

M. Other Symptoms

a. Smell (Olfactory Deficits)

1. Background

Posttraumatic olfactory deficits (anosmia) are not common in individuals who sustain an mTBI.(36) Treatments have limited effect and are usually aimed at flavoring/spicing food to enhance taste and providing specific safety education (e.g., particular attention to working smoke detectors for patients who may not smell smoke). Other causes are also extremely rare and often not related directly to the concussion injury. Depression, common among those with persistent symptoms following mTBI, has been associated with perceptual biases in olfaction that may drive patient complaints of changes in smell and taste.(37) Pre-injury causes of anosmia need to be ruled out.(38)

2. Assessment and Treatment

1. Perform a nasal and oropharyngeal examination. Screen for depression.
2. Refer to ear, nose, and throat specialist (ENT) for further evaluation, if needed.
3. If neurologic status is stable and there are no objective findings, reassurance and monitoring are appropriate.
4. For depressed patients, treatment with psychotherapy may improve olfaction.(39)
5. Increase spicing of foods (with or without dietary referral). Monitor weight. Provide specific safety education.
6. Smoking cessation as a possible treatment for loss of smell.

b. Nausea

1. Background

Occasionally, posttraumatic nausea occurs acutely after mTBI, most often in combination with dizziness, as a secondary effect of medications (pain), or due to an exacerbation of underlying gastroesophageal reflux disease (GERD) and gastrointestinal (GI) dysfunction. This symptom may also be associated with psychological stressors.

2. Assessment and Treatment

1. Define triggers and patterns of nausea.
2. Assess medication lists for agents that may cause or worsen GI symptoms.
3. The initial focus should be on the rapid management of dizziness and return to activity. Formal assessment should be limited.

3. Changes in Appetite

While changes in appetite can occur, these are not a primary effect of mTBI but rather are the result of secondary issues. When a change in appetite is noted, it may be related to mood, medications, smell, or other factors and will likely resolve as these factors are addressed.

c. Numbness

Numbness following mTBI in the absence of peripheral nerve injury is atypical and may be associated with psychological stressors. A sensory examination may be performed to assess the symptom.

Scope of the CPG

This CPG is based on published clinical evidence and related information available through April 28, 2020. It is intended to provide general guidance on best evidence-based practices (see Appendix A in the full VA/DoD mTBI CPG for additional information on the evidence review methodology). This CPG is not intended to serve as a standard of care.

This CPG is intended for use by VA and DoD primary care providers (PCPs) including physicians, nurse practitioners, physician assistants, nurses, pharmacists, psychologists, social workers, and others involved in the healthcare team caring for patients with symptoms attributed to mTBI. Additionally, this guideline is intended for those in community practice involved in the care of Service Members or Veterans with symptoms attributed to mTBI.

The patient population of interest for this CPG is patients with symptoms attributed to mTBI in the post-acute phase who are eligible for care in the VA or DoD healthcare delivery systems, and those who receive care from community-based clinicians. It includes Veterans as well as deployed and non-deployed active duty Service Members, National Guard, Reserve members, Reserve Officer Training Corps (ROTC) Cadets, those in military academies, and their dependents. Regardless of care setting, any patient in the VA and DoD healthcare system should have access to this CPG's recommended interventions.

Methods

The methodology used in developing this CPG follows the *Guideline for Guidelines*, an internal document of the VA and DoD EBPWG updated in January 2019 that outlines procedures for developing and submitting VA/DoD CPGs.(40) The *Guideline for Guidelines* is available at http://www.healthquality.va.gov/policy/index.asp. This CPG also aligns with the National Academy of Medicine's (NAM) principles of trustworthy CPGs (e.g., explanation of evidence quality and strength, the management of potential conflicts of interest [COI], interdisciplinary stakeholder involvement, use of systematic review (SR), and external review).(41) Appendix A in the full VA/DoD mTBI CPG provides a detailed description of the CPG development methodology.

The Work Group used the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach to craft each recommendation and determine its strength. Per GRADE approach, recommendations must be evidence-based and cannot be made based on expert opinion alone. The GRADE approach uses the following four domains to inform the strength of each recommendation: confidence in the quality of the evidence, balance of desirable and undesirable outcomes, patient values and preferences, other considerations as appropriate (e.g., resource use, equity) (see Grading Recommendations in the full VA/DoD mTBI CPG).(42)

Using these four domains, the Work Group determined the relative strength of each recommendation (*Strong* or *Weak*). 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 and is based on the framework above, which incorporates the four domains.(43) A *Strong* recommendation generally indicates

High or *Moderate* confidence in the quality of the available evidence, a clear difference in magnitude between the benefits and harms of an intervention, similar patient values and preferences, and understood influence of other implications (e.g., resource use, feasibility).

Using these elements, the Work Group determines the strength and direction of each recommendation and formulates the recommendation with the general corresponding text (see Table 3).

Table 3. Strength and Direction of Recommendations and General Corresponding Text

Recommendation Strength and Direction	General Corresponding Text
Strong for	We recommend …
Weak for	We suggest …
Neither for nor against	There is insufficient evidence to recommend for or against …
Weak against	We suggest against …
Strong against	We recommend against …

It is important to note that a recommendation's strength (i.e., *Strong* versus *Weak*) is distinct from its clinical importance (e.g., a *Weak* recommendation is evidence-based and still important to clinical care). The strength of each recommendation is shown in the Recommendations section.

Recommendation categories were used to track how the previous CPG's recommendations could be reconciled. These categories and their corresponding definitions are similar to those used by the National Institute for Health and Care Excellence (NICE, England).(44, 45) The categories and definitions can be found in Table 4.

Table 4. Recommendation Categories and Definitions[a]

Evidence Reviewed	Recommendation Category	Definition
Reviewed[b]	New-added	New recommendation
	New-replaced	Recommendation from previous CPG was **carried forward and revised**
	Not changed	Recommendation from previous CPG was **carried forward but not changed**
	Amended	Recommendation from previous CPG was **carried forward with a nominal change**
	Deleted	Recommendation from previous CPG was **deleted**
Not reviewed[c]	Not changed	Recommendation from previous CPG was **carried forward but not changed**
	Amended	Recommendation from previous CPG was **carried forward with a nominal change**
	Deleted	Recommendation from previous CPG was **deleted**

[a] Adapted from the NICE guideline manual (2012) (45) and Garcia et al. (2014) (46)

[b] The topic of this recommendation was covered in the evidence review carried out as part of the development of the current CPG.

[c] The topic of this recommendation was not covered in the evidence review carried out as part of the development of the current CPG.

Abbreviation: CPG: clinical practice guideline

Guideline Work Group

Table 5. Guideline Work Group and Guideline Development Team

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Patient-centered, Stepped Care, and a "Whole Health" Orientation

Guideline recommendations are intended to consider patient needs and preferences and represent a whole/holistic health approach to care that is patient-centered, culturally appropriate, and available to people with limited literacy skills and physical, sensory, or learning disabilities. VA/DoD CPGs encourage providers to use a patient-centered, whole/holistic health approach (i.e., individualized treatment based on patient needs, values, and preferences). This approach aims to treat the particular condition while also optimizing the individual's overall health and well-being. Values and preferences can be affected by a wide range of characteristics and life experiences (e.g., age, sex, race, ethnicity).

A "stepped care" approach preserves the patient-centered nature of care as the patient moves through levels of increasing complexity of needs, to include involvement of specialty services. The "next step" in care becomes a seamless extension of their care to the next level of complexity and specialization in care, rather than being the experience of leaving their team when they are "referred to the specialist."

Regardless of the care setting, all patients should have access to individualized evidence-based care. Patient-centered care can decrease patient anxiety, increase trust in clinicians, and improve treatment adherence.(47, 48) A whole/holistic health approach (https://www.va.gov/wholehealth/) empowers and equips individuals to meet their personal health and well-being goals. Good communication is essential and should be supported by evidence-based information tailored to each patient's needs. An empathetic and non-judgmental approach facilitates discussions sensitive to sex, culture, ethnicity, and other differences.

Shared Decision Making

This CPG encourages providers to practice shared decision making with their patients. Shared decision making was emphasized in *Crossing the Quality Chasm,* an Institute of Medicine (IOM) (now NAM) report, in 2001.(49) Providers must be adept at presenting information to their patients regarding individual treatments, expected risks, expected outcomes, and levels and/or settings of care, especially where there may be patient heterogeneity in risks and benefits. The VHA and MHS have embraced shared decision making. Providers are encouraged to use shared decision making to individualize treatment goals and plans based on patient capabilities, needs, and preferences.

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