

VA/DoD CLINICAL PRACTICE GUIDELINE FOR THE MANAGEMENT OF CONCUSSION-MILD TRAUMATIC BRAIN INJURY

Presenters

COL Geoffrey G. Grammer, MD

Dr. Thomas J. DeGraba, MD

Ms. Linda Picon, MCD, CCC-SLP

Moderator

Dr. Katherine Stout, PT, DPT, NCS, MBA.



DHA Vision



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Webinar Details



- Audio is not provided via Adobe Connect
- For Audio
 - Dial In: 888-455-7049
 - Passcode: 7245308
- The webinar is being recorded
- Q&A session is done online at the end of the webinar and participants are to submit them to the Q&A pod only

Resources Available for Download



- Today's presentation will be available for download at the end of the program in the "Files" box on the screen (circled).
- All CPG documents can be downloaded from the Adobe site

A screenshot of a meeting interface. On the left, there is a sidebar with several sections: "Attendees (0)", "Active Questions", "Forms (0)", "Participants (0)", "Participants (0)", "iCal Event Manager - .ics", "Files", "Download Files", and "Q & A". The "Files" section is circled in blue and contains two entries: "22 Sep 2014 VA/DVBC TR Grand Rou... 4 MB" and "Non-VA Evaluation Form... 204 KB". The main content area on the right displays the title "VA/DVBC CLINICAL GRAND ROUNDS" with the DHA logo. Below this is the title "VA/DoD CLINICAL PRACTICE GUIDELINE FOR THE MANAGEMENT OF CONCUSSION-MILD TRAUMATIC BRAIN INJURY" and the date "June 24, 2016, 12.00-1.15 p.m. (EST)". The speakers listed are "COL Geoffrey G. Grammer, MD", "Dr. Tomas J. DeGraba, MD", "Ms. Linda Picon, MCD, CCC-SLP", and "Moderator: Dr. Katherine Stout". At the bottom, there are several circular logos of various military and medical organizations, and the slogan "Medically Ready Force...Ready Medical Force" with a small number "1" in the bottom right corner.

"Medically Ready Force...Ready Medical Force"

Continuing Education Details



- All attendees are eligible for 1.0 credit hour of ACCME, ACCME-NP, ANCC and APA for 100% attendance.
- Participants will need to complete the evaluation process within 30 days (deadline July 24) to receive continuing education credit.

VHA Attendee Instructions:

- VHA participants **must be preregistered** to complete the evaluation in TMS.
- VHA staff should email Erica.Jackson2@va.gov if you were unable to register before the webinar started.
- Certificate of completion may be printed through TMS upon successful completion.

DoD/non-VA Participant Instructions



- For DoD/non-VA participants, you must pre-register for this course on the VHA TRAIN portal at <http://vha.train.org>
- If this is your first visit select “Create Account” on the menu to register. If you already have a TRAIN account, please enter your login name and password on the main screen.
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- Your certificate will be available on the TRAIN site under “My Certificates”.
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Webinar Overview



- 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 recently revised version of the CPG (released in early 2016).
- Members of the Management of Concussion-Mild Traumatic Brain Injury Working Group will present an introduction to the revised VA/DoD Clinical Practice Guidelines for the Management of Concussion-Mild Traumatic Brain Injury. Speakers will highlight updates in the 2016 version and will discuss the accompanying CPG mTBI algorithm, a reference tool used to guide providers through assessment, treatment, and management of patients with mTBI.

Learning Objectives



Participants will be able to:

- Briefly describe recommendations of the updated VA/DoD Clinical Practice Guidelines for the Management of Concussion/mTBI
- Identify the key changes made from the 2009 version to the 2016 version
- Understand the recommended algorithm for mTBI using the new CPG
- Identify and locate additional materials and resources related to the VA/DoD CPG mTBI as well as mild traumatic brain injury overall

Army Col. (Dr.) Geoffrey G. Grammer



- National Director of Defense and Veterans Brain Injury Center (DVBIC)
- Assistant professor of psychiatry at Uniformed Services University of the Health Sciences (USUHS)
- Recent department chief of research at National Intrepid Center of Excellence (NICoE)
- Eight years as chief of inpatient psychiatric services at Walter Reed National Military Medical Center (WRNMMC)
- Board certified in psychiatry, geriatric psychiatry, behavioral neurology and neuropsychiatry
- Recipient of numerous military awards, twice deployed to Iraq and once to Afghanistan

“Medically Ready Force...Ready Medical Force”

Dr. Thomas J. DeGraba. M.D.



- Chief Innovations Officer and Founding Deputy Director, National Intrepid Center of Excellence (NICoE)
- Head of Stroke Clinic and Cerebrovascular Lab at National Naval Medical Center from 2002 to 2009
- Senior Staff Fellow, National Institute of Neurological Disorder and Stroke (NINDS), establishing the first Intramural Clinical Stroke Program at the National Institutes of Health (NIH), Intramural main campus 1992-2002,
- Prior Associate Professor (Neurology), Uniformed Services University of the Health Sciences (USUHS)
- Nationally recognized clinical neuroscience subject matter expert and leader in the field of neurology, for over twenty five years

Linda M. Picon, MCD, CCC-SLP



- Department of Veterans Affairs (VA) Senior Consultant/Liaison for Traumatic Brain Injury to the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury
- Received congressional commendation for exceptional service to wounded Service members and veterans
- Over twenty years as a speech-language pathologist providing rehabilitation services
- Contributed to the development of clinical recommendations, treatment toolkits and VA/DoD clinical practice guidelines and congressionally-mandated TBI research protocols
- Expert lecturer for topics related to TBI-related dysphagia, communication and cognitive rehabilitation

Polling Question



My primary discipline is:

1. Primary care provider
2. Rehabilitation provider
3. Behavioral health provider
4. Nurse
5. Social worker/case manager
6. Other

Background to the CPG mTBI



2004

- VA and DoD Evidence-Based Practice working group established
- Mission: Improve health of all service members by developing Clinical Practice Guidelines
- Purpose: Provide a framework for care providers to evaluate, treat, and manage needs and preferences of individuals with a history of mTBI

2009

- CPG for the management of Concussion-mTBI published by VA/DoD.
- Based on comprehensive systematic review of evidence on adults with TBI in VA/DoD clinical settings through 2008

Background (cont.)



2014

- Process to update the 2009 mTBI CPG was initiated

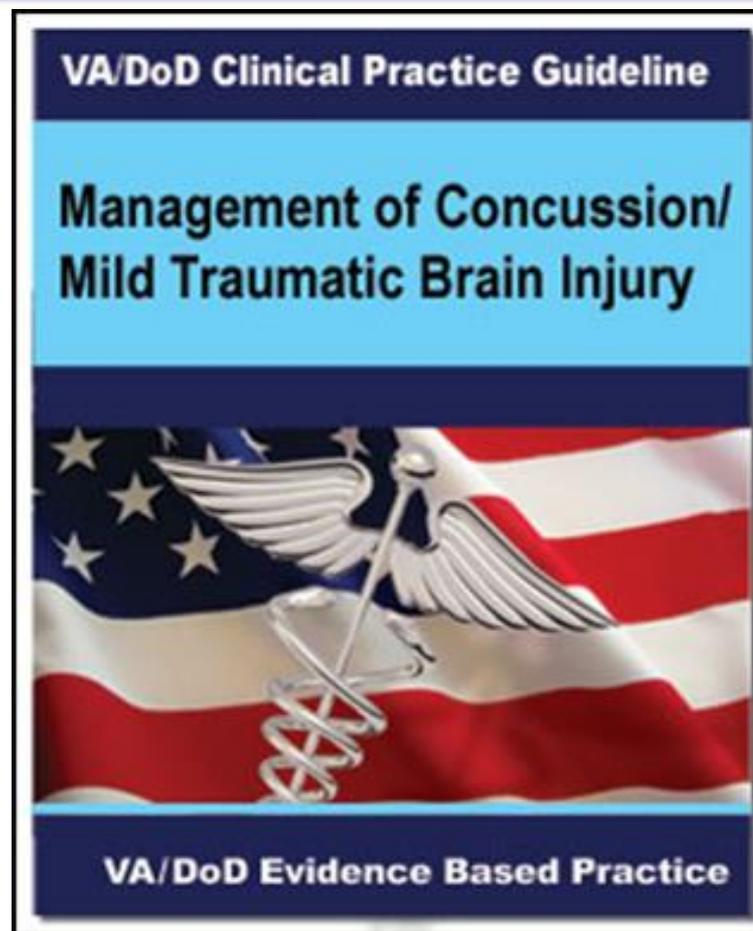
2016

- Update CPG for mTBI was published in March.
- Provides evidence-based management of patients with a history of TBI
- Intent is to assist primary and other health care providers in the management of all aspects of patient care

VA/DoD Clinical Practice Guidelines: 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



Expected outcomes



The expected outcomes of successful implementation of the CPG of mTBI are to:

- Assess the patient's condition and determine the best treatment method
- Optimize the clinical management to improve symptoms and functioning, adherence to treatment, recovery, well-being, and quality of life outcomes
- Minimize preventable complications and morbidity
- Emphasize the use of patient-centered care

Disclaimer



The VA/DoD Clinical Practice Guideline for the Management of Concussion/mTBI:

- Based upon the best information available at the time of publication (March, 2016)
- Not constructed or intended to define a standard of care
- Does not prescribe an exclusive course of management
- Recognize 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

Changes to VA/DoD TBI definition: ~~2007~~ to 2015



A traumatic brain injury (TBI) is a traumatically induced structural injury and/or physiological disruption of brain function as a result of an external force and is indicated by new onset or worsening of at least one of the following clinical signs immediately following the event:

- Any alteration in mental status ~~state at the time of the injury~~ (e.g., confusion, disorientation, slowed thinking, alteration of consciousness/mental state)
- Any loss of memory for events immediately before or after the injury
- Any period of loss of or a decreased level of consciousness, observed or self-reported
- ~~Neurological deficits (e.g., weakness, loss of balance, change in vision, praxis, paresis/plegia, sensory loss, aphasia) that may or may not be transient~~
- ~~Intracranial lesion~~

Classification of TBI Severity[§]



| Criteria | Mild | Moderate | Severe |
|---|--------------|---|---|
| Structural imaging | Normal | Normal or abnormal | Normal or abnormal |
| Loss of Consciousness (LOC) | 0-30 min | >30 min and <24 hrs | >24 hrs |
| Alteration of consciousness/ mental state (AOC)* | up to 24 hrs | >24 hours; severity based on other criteria | >24 hrs; severity based on other criteria |
| Posttraumatic amnesia (PTA) | 0-1 day | >1 and <7 days | >7 days |
| Glasgow Coma Scale (GCS) (best available score in first 24 hours)** | 13-15 | 9-12 | <9 |

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

*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 being unable to describe events immediately before or after the trauma event.

**In April 2015, the DoD released a memorandum recommending against the use of GCS scores to diagnose TBI. See the memorandum for additional information.¹

Terminology Changes



- Terms “mTBI” and “concussion” used interchangeably
- “Patients with a ***history of*** mTBI” recommended term over “Patient with mTBI”
- Classification of TBI only refers to those symptoms and signs that occur in the *immediate injury period*, and thus should never be used in the present tense to refer to ongoing symptoms that persist and are attributed to the TBI injury after the immediate period

Updated post-injury periods



2009

Post-Injury Period

- Immediate/Acute period
 - 0-7 days
- Early post-acute recovery period
 - 7-30 days post injury
- Follow-up period
 - 4-6 weeks post injury
- Persistent symptoms/Chronic phase
 - Beyond 4-6 weeks

2016

Updated Post-Injury period

- Immediate period
 - 0-7 days post injury
- Acute period
 - 1-6 weeks post injury
- Post-acute period
 - 7-12 weeks post injury
- Chronic
 - > 12 weeks post-injury

Scope of the CPG mTBI



- Designed to assist providers in managing or comanaging patients with a history of mTBI
- 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
- Only individuals who are 18+ years of age, in the acute to chronic period post-injury, with the severity classification of a mild TBI

Guideline Development Methodology



- Evidence-based Practice Work Group (EBPWG) and CPG partner champions selected and tasked with identifying the scope and key questions to guide systematic literature review on mTBI
- Extensive literature review conducted by Lewin team based upon the key research questions
- 3-day face-to-face meeting of EBPWG and CPG partner champions to develop and draft new guidelines based upon the evidence, using new grading system
- Several drafting and revisions made from peer and internal review feedback. Guideline finalized January, 2016

Guideline Working Group



Department of Veterans Affairs

David X. Cifu, MD (Co-chair)

Jennifer Burton, DPT

Mary Damerson, MSN, RN, CRRN, CCM, CBIS

Blessen C. Eapen, MD

Robin A. Hurley, MD, FANPA

Scott D. McDonald, PhD

Linda M. Picon, MCD, CCC-SLP

Ronald G. Riechers, II, MD

Kathryn Tortorice, PharmD, BCPS

Linda Van Horn, MSN, BSN, CFNP

Deborah Voydetich, OTR/L, SCLV

Department of Defense

COL Geoffrey G. Grammer, MD (Co-Chair)

COL Lisa Teegarden, PsyD (Co-Chair)

Amy O. Bowles, MD

Megan Chilson, PharmD

Thomas J. DeGraba, MD

CDR Josh L. Duckworth, MD

CDR Jeffrey Feinberg, MD, MPH, FAAFP

Louis M. French, PsyD

COL Sidney R. Hinds II, MD

Charles W. Hoge, MD

Timothy Lacy, MD

James Sall, PhD, FNP-BC

Major Derrick F. Vaner, PhD, DFAAPA

Office of Evidence Based Practice

U.S. Army Medical Command

Ernest Degenhardt, COL USA (Ret.) RN, MSN, ANP/FNP, BC

Corinne K.B. Devlin, MSN, RN, FNP-BC

James Sall, PhD, FNP-BC

Office of Quality, Safety and Value

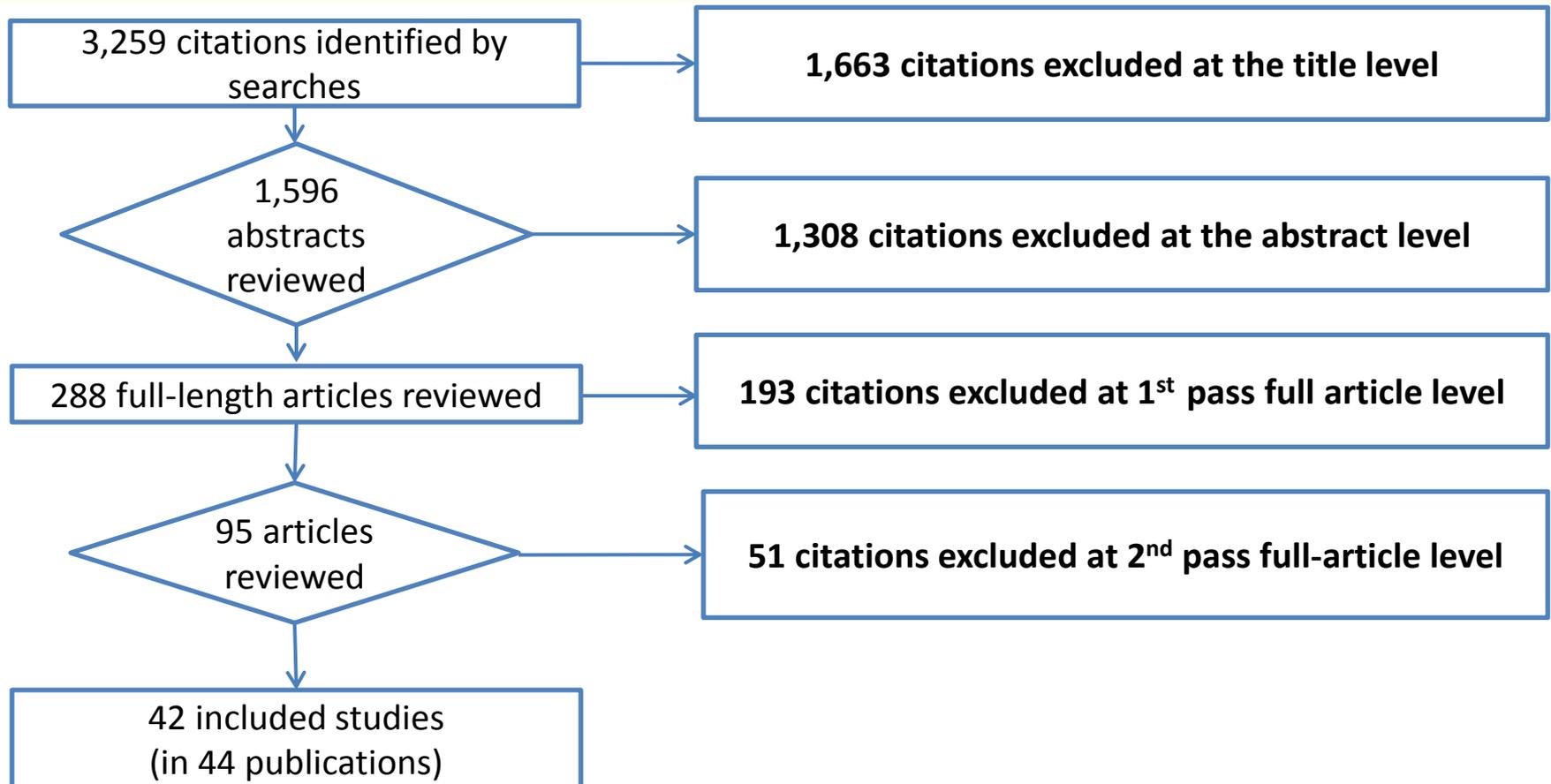
Veterans Health Administration

Eric Rodgers, PhD, FNP, BC

Rene Sutton, BS, HCA

Evidence Review

10 Key Questions Developed



2016 CPG Grading: The GRADE (Grading of Recommendations Assessment, Development and Evaluation) System



Uses 4 domains to assess strength of each recommendation

- Balance of desirable and undesirable outcomes
 - Rated: benefits outweigh harms/burden; benefits slightly outweigh harms/burden; benefits and harms/burden are balanced; harms/burden slightly outweigh benefits; harms/burden outweigh benefit”
- Confidence in the quality of the evidence
 - Rated: high, moderate, low, or very low
- Values and Preferences
 - Rated: similar values, some variation, or large variation
- Other implications
 - Resource use, equity, acceptability, feasibility, subgroup considerations

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
- Based on
 - The four decision domains to determine strength and direction
 - Relative strength (Strong or Weak)
 - Direction (For or Against)
- 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...”)

Evidence Review table A-2

Recommendation Categories & Definitions*



| Reviewed Category * | Recommendation Definition* |
|------------------------|---|
| New-added | New recommendation following review of the evidence |
| New-replaced | Recommendation carried over to updated CPG and changed after evidence review |
| Not changed | Recommendation from previous CPG that has been carried forward to the updated CPG where the evidence was reviewed but the recommendation is not changed |
| Amended | Prior recommendation carried over to updated CPG where the evidence has been reviewed and a minor amendment has been made |
| Deleted | Recommendation from prior CPG removed after review of the evidence |
| Un-reviewed Category * | Recommendation Definition* |
| Not changed | Recommendation from previous CPG that has been carried forward to the updated CPG, but for which the evidence has not been reviewed |
| Amended | Recommendation from the previous CPG that has been carried forward to the updated CPG where the evidence was not reviewed and minor amendment made |
| Deleted | Prior CPG recommendation removed as deemed out of scope for updated CPG |

*Adapted from NICE guideline manual (2012) [6] and Garcia et al. (2014) [7]

Outline CPG mTBI: Recommendation Categories



- A. Diagnosis and assessment
- B. Co-occurring Conditions
- C. Treatment
 - a) Effect of mTBI Etiology on Treatment Options and Outcomes
 - b) Headache
 - c) Dizziness and Disequilibrium
 - d) Tinnitus
 - e) Visual Symptoms
 - f) Sleep Disturbances
 - g) Behavioral Symptoms
 - h) Cognitive Symptoms
- D. Setting of Care

Breakdown of Recommendations by Category in 2016 CPG mTBI



| Reviewed Category | A Diagnosis and Treatment | B Co-occurring Conditions | C Treatment | D Setting of Care | TOTAL |
|-----------------------|------------------------------|------------------------------|----------------|----------------------|-----------|
| New-added | - | - | 4 | - | 4 |
| New-replaced | 2 | - | 2 | 1 | 5 |
| Amended | - | - | 3 | 3 | 6 |
| Not reviewed Category | A Diagnosis and Treatment | B Co-occurring Conditions | C Treatment | D Setting of Care | |
| Amended | 4 | 1 | 3 | - | 8 |
| TOTAL ALL | 6 | 1 | 12 | 4 | 23 |

Note: The following categories are not shown in the table above: not changed, reviewed; deleted, reviewed; not changed, not reviewed; and deleted, not reviewed. These rows were removed from the table for clarity because they contained no entries.

Clinical Algorithm

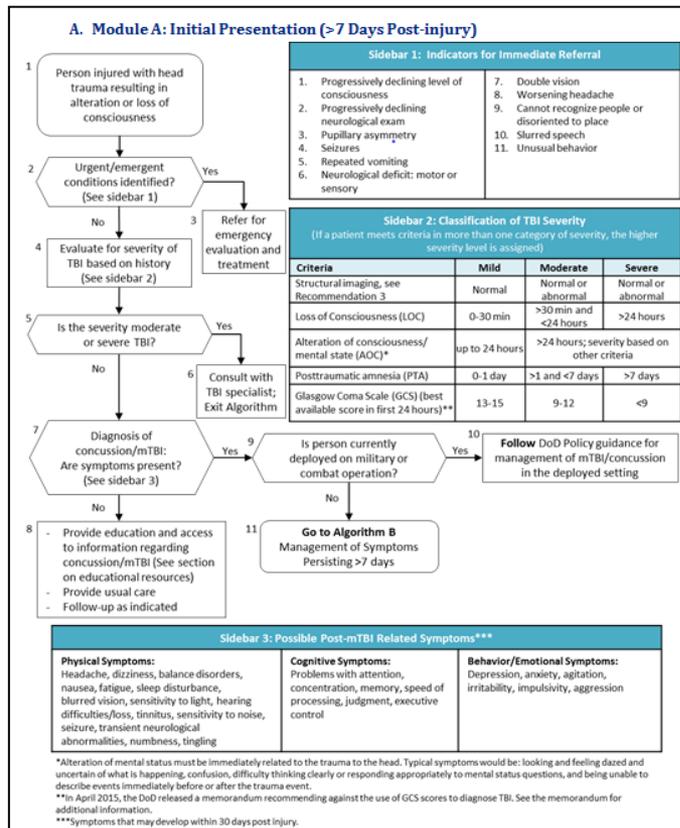
- Used in the CPG to help assess the critical information needed at major clinical decision making points.
- Diagrams a step-by-step sequential decision tree and standardized symbols display each step.
- Arrows connect the numbered boxes indicating the order in which the steps need to be followed

| | |
|---|--|
|  | Rounded rectangles represent a clinical state or condition. |
|  | Hexagons represent a decision point in the guideline, formulated as a question that can be answered Yes or No. |
|  | Rectangles represent an action in the process of care. |

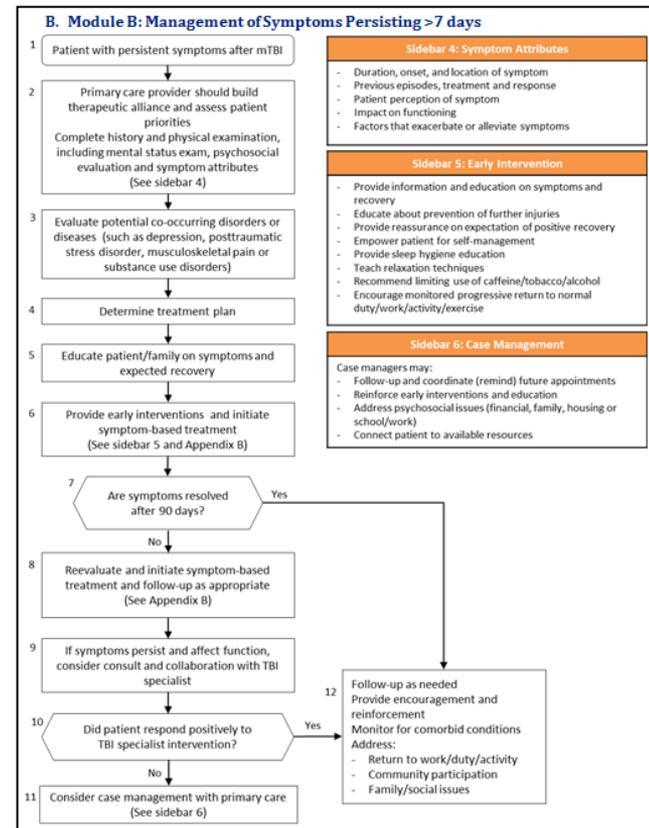
Algorithms in the 2016 CPG mTBI



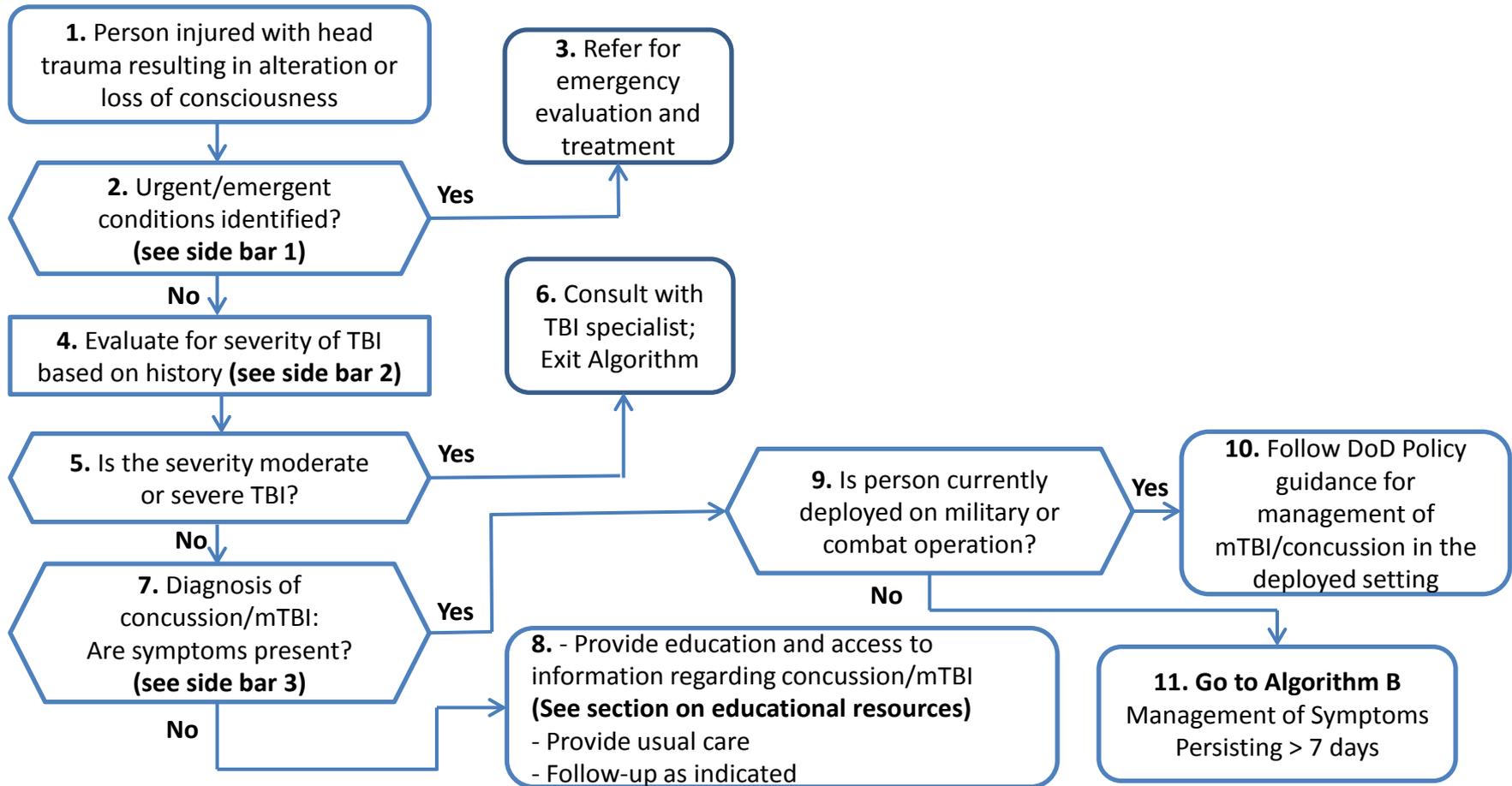
Module A: Initial presentation (>7 days post injury)



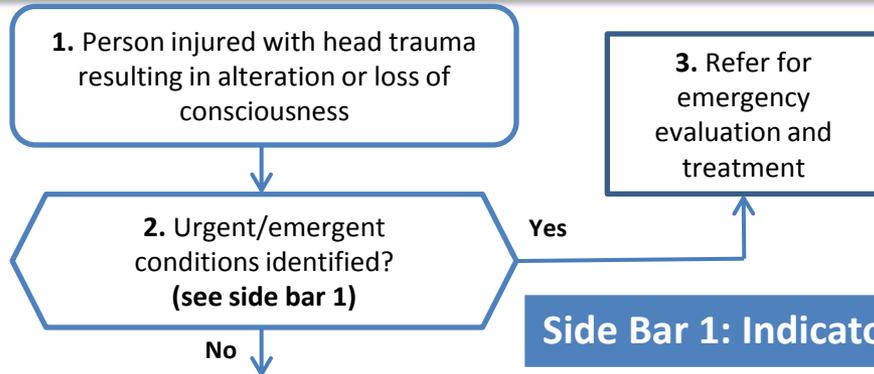
Module B: Management of Symptoms Persisting >7 days



Module A: Initial Presentation



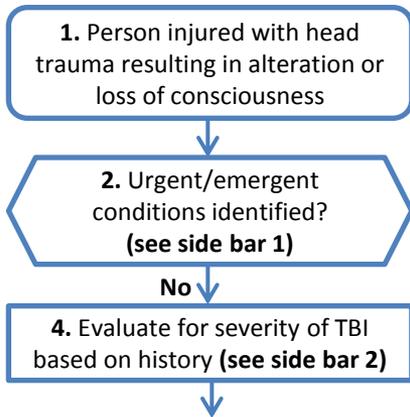
Initial Presentation: Identify urgent/emergent conditions



Side Bar 1: Indicators for Immediate Referral

| | |
|--|--|
| 1. Progressively declining level of consciousness | 2. Progressively declining neurological exam |
| 3. Pupillary asymmetry | 4. Seizures |
| 5. Repeated vomiting | 6. Neurological deficit: motor or sensory |
| 7. Double vision | 8. Worsening headache |
| 9. Cannot recognize people or disoriented to place | 10. Slurred speech |
| 11. Unusual behavior | |

Initial Presentation: Evaluate for TBI severity



Side Bar 2: Classification of TBI Severity

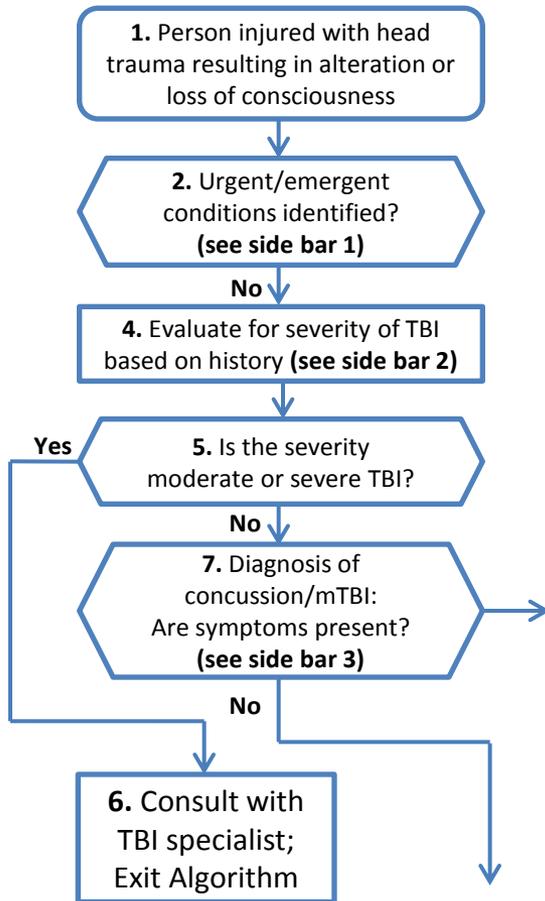
(If a patient meets criteria in more than one category of severity, the higher severity level is assigned)

| Criteria | Mild | Moderate | Severe |
|---|--------------|---|---|
| Structural imaging | Normal | Normal or abnormal | Normal or abnormal |
| Loss of Consciousness (LOC) | 0-30 min | >30 min and <24 hrs | >24 hr |
| Alteration of consciousness/mental state (AOC)* | up to 24 hrs | >24 hours; severity based on other criteria | >24 hrs; severity based on other criteria |
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| Glasgow Coma Scale (GCS) (best available score in first 24 hours)** | 13-15 | 9-12 | <9 |

*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 being unable to describe events immediately before or after the trauma event.

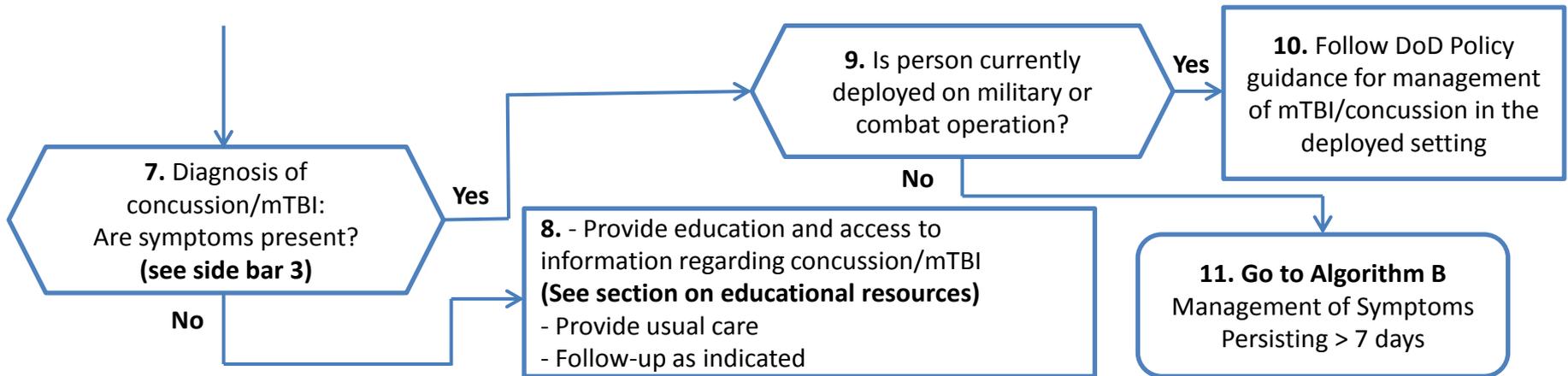
**In April 2015, the DoD released a memorandum recommending against the use of GCS scores to diagnose TBI. See the memorandum for additional information.¹

Initial Presentation: Determine presence of symptoms

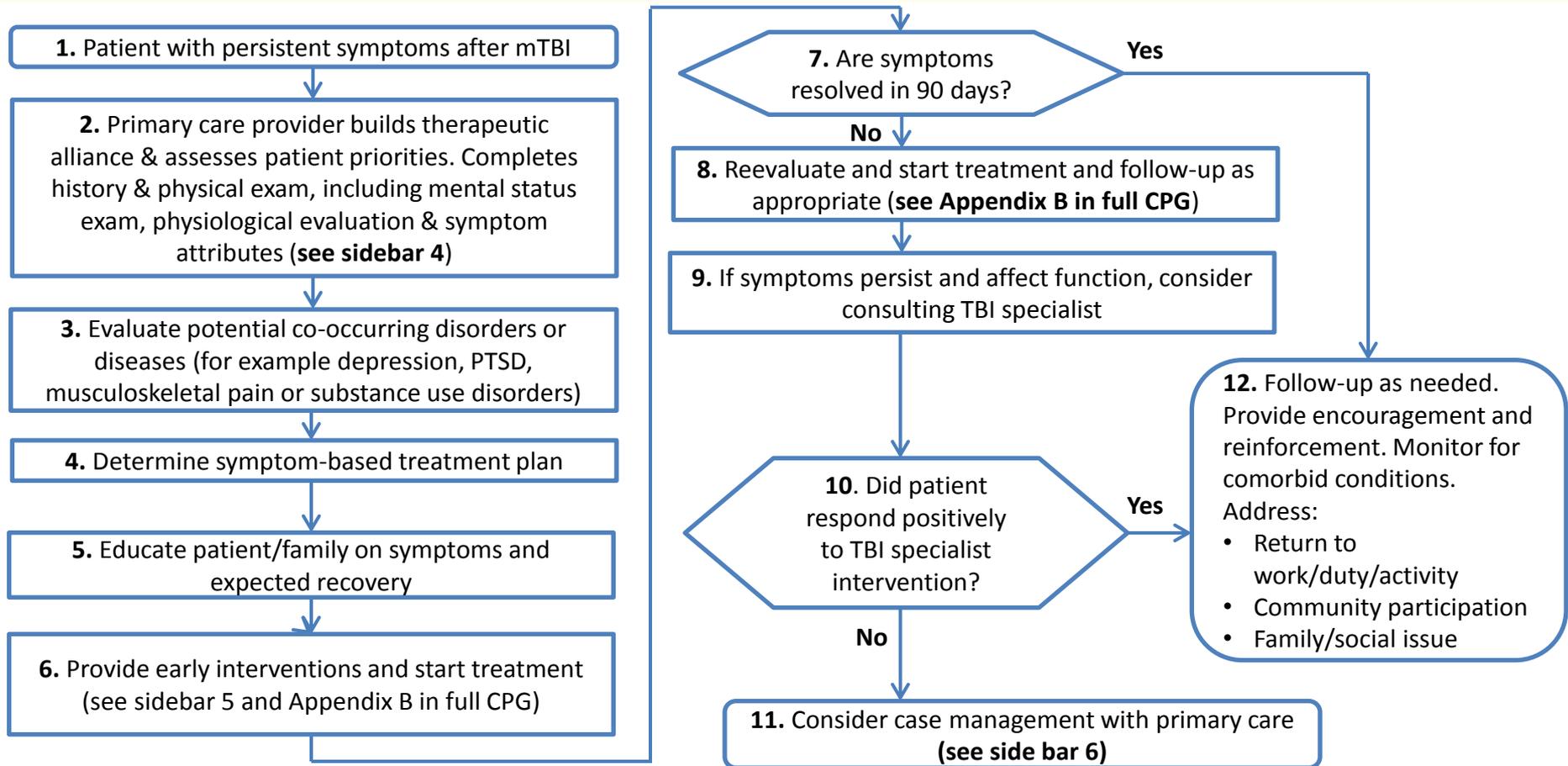


| Side Bar 3: Possible Post-mTBI Related Symptoms* | | |
|--|--|---|
| Physical Symptoms: | Cognitive Symptoms: | Behavior/Emotional Symptoms: |
| Headache, dizziness, balance disorders, nausea, fatigue, sleep disturbance, blurred vision, sensitivity to light, hearing difficulties/loss, tinnitus, sensitivity to noise, seizure, transient neurological abnormalities, numbness, tingling | Problems with attention, concentration, memory, speed of processing, judgment, executive control | Depression, anxiety, agitation, irritability, impulsivity, aggression |
| *Symptoms that may develop within 30 days post injury. | | |

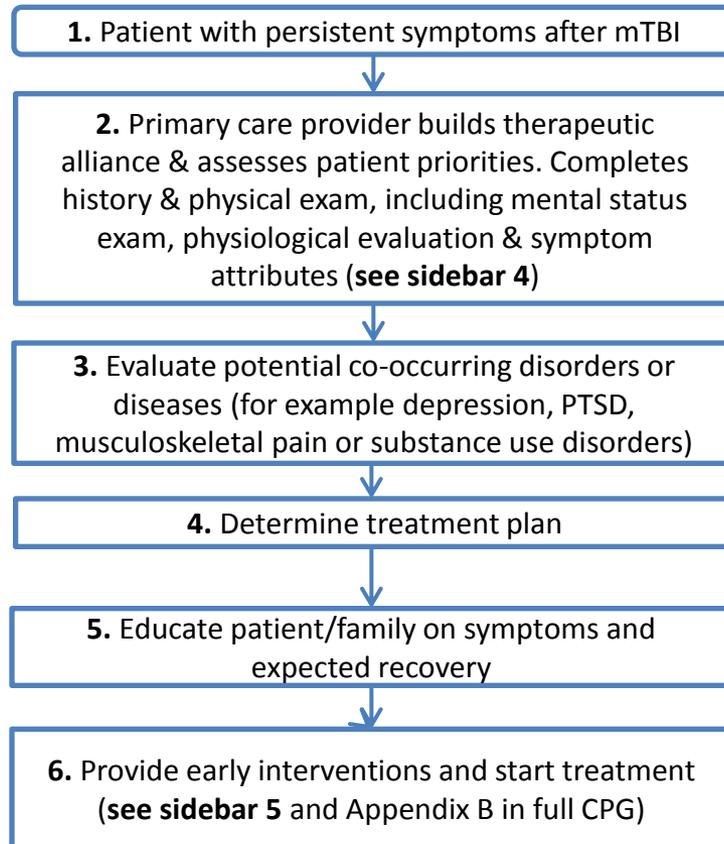
Initial Presentation: Determine Symptom Management



Module B: Management Symptoms Persisting >7 Days



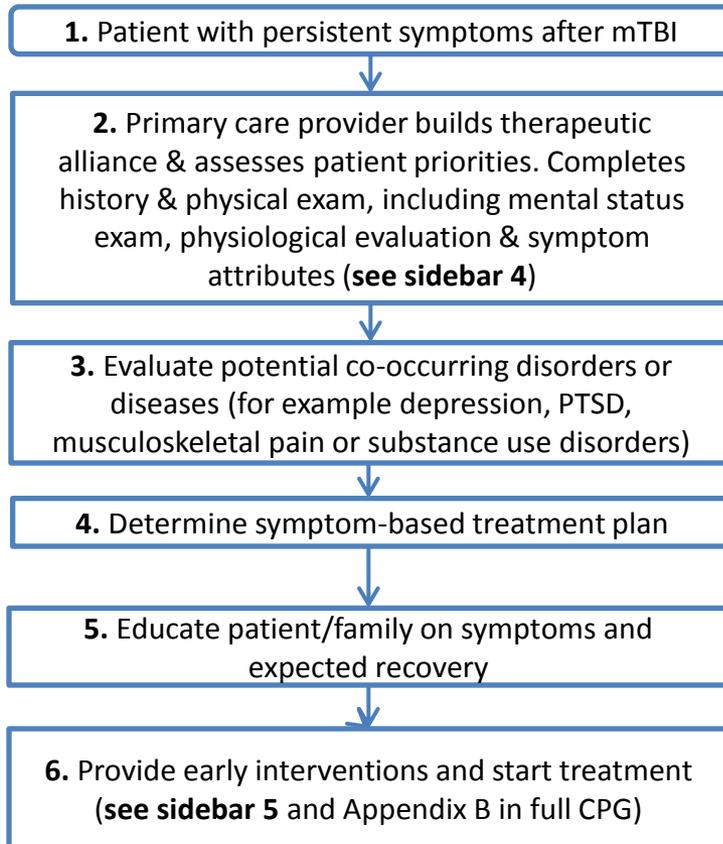
Management of Symptoms Persisting > 7 days: Assess, Evaluate, Educate



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

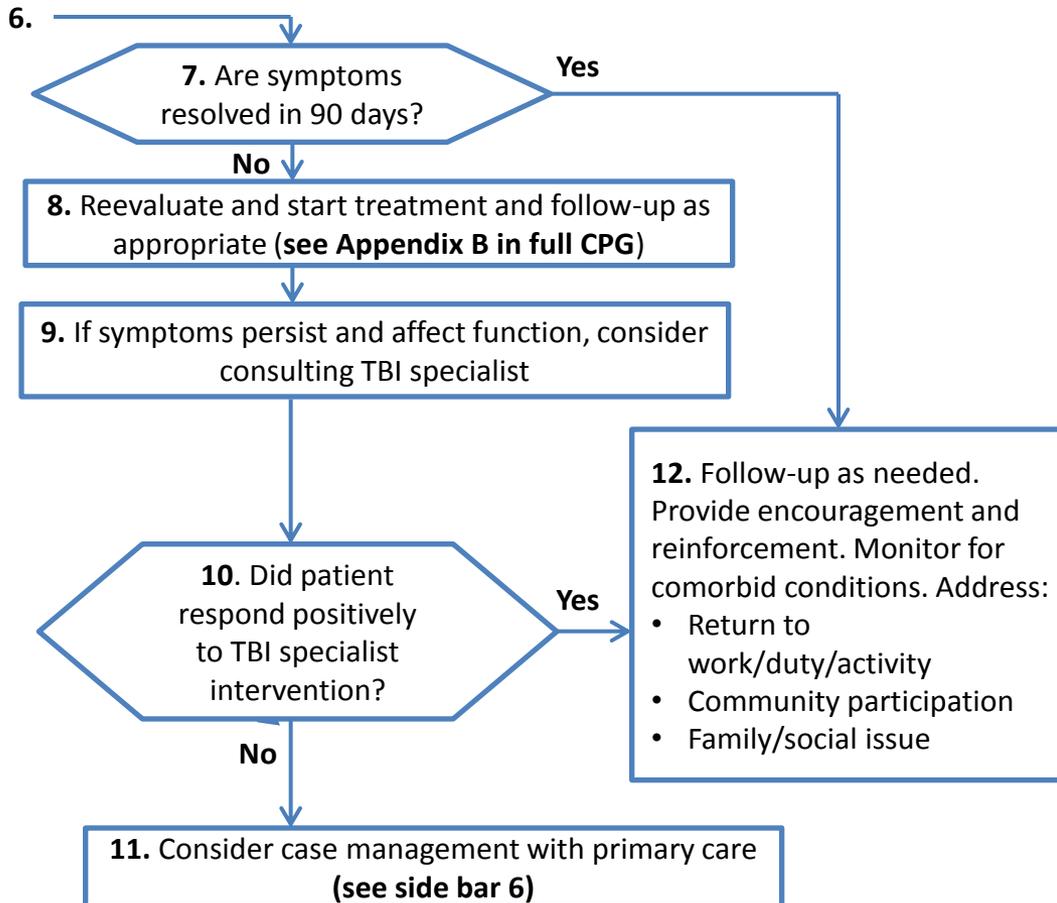
Management of Symptoms Persisting > 7 days: Provide early intervention



Sidebar 5: Early Intervention

- Provide information and education on symptoms and recovery
- Educate about prevention of further injuries
- Provide reassurance on expectation of positive recovery
- Empower patient for self-management
- Provide sleep hygiene education
- Teach relaxation techniques
- Recommend limiting use of caffeine/tobacco/alcohol
- Encourage monitored progressive return to normal duty/work/activity/exercise

Management of Symptoms Persisting > 7 days: Follow-up or Case Management



Sidebar 6: Case Management

Case managers may:

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

10 Key Question topics



1. Specialized diagnostic tests
2. Mechanisms of injury
3. Settings of care
4. Dizziness and vestibular rehabilitation
5. Headaches after mTBI
6. a) Automated cognitive rehabilitation
b) Neuropsychological vs. cognitive rehabilitation
7. Behavioral dyscontrol
8. Sleep Hygiene
9. Persistent tinnitus
10. Visual symptoms

VI. Recommendations

A. Diagnosis and Assessment



| Recommendation | Strength* | Category † |
|---|--------------|-----------------------|
| <p>1. We suggest +-using the terms “history of mild traumatic brain injury (mTBI)” or “concussion” and to refrain from using the terms “brain damage” or “patients with mTBI” in communication with patients and the public.</p> | Weak for | Amended, not reviewed |
| <p>2. We recommend evaluating patients presenting symptoms /complaints that may relate to mTBI at initial presentation.</p> | Strong for | Amended, not reviewed |
| <p>3. Excluding patients with indicators for immediate referral, for patients identified by post-deployment screening or who present to care with symptoms or complaints potentially related to brain injury, we suggest <u>against</u> using the following tests to establish the diagnosis of mTBI or direct the care of patients with a history of mTBI:</p> <ul style="list-style-type: none"> a. Neuroimaging b. Serum biomarkers, including S100 calcium-binding protein B (S100-B), glial fibrillary acidic protein (GFAP), ubiquitin carboxyl-terminal esterase L1 (UCH-L1), neuron specific enolase (NSE), and α-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid receptor (AMPA) peptide c. Electroencephalogram (EEG) | Weak against | Amended, not reviewed |

*For additional information, please refer to Grading Recommendations in the CPG.

† For additional information, please refer to Recommendation Categorization and Appendix E: 2009 Recommendation Categorization in the CPG.

VI. Recommendations

A. Diagnosis and Assessment continued



| Recommendation | Strength* | Category † |
|--|----------------|------------------------|
| 4. We recommend <u>against</u> performing comprehensive neuropsychological/ cognitive testing during the first 30 days following mTBI. For patients with symptoms persisting after 30 days, see Recommendation 17. | Strong against | Amended, not reviewed |
| 5. For patients identified by post-deployment screening or presenting symptoms/complaints that may relate to mTBI, we recommend <u>against</u> using the following tests in <u>routine</u> diagnosis and care of patients with mTBI symptoms : a. Comprehensive , focused neuropsychological tests, including Automated Neuropsychological Assessment Metrics (ANAM), Neuro-Cognitive Assessment Tool (NCAT), or Immediate Post-Concussion Assessment and Cognitive Testing (ImpACT) | Strong against | Reviewed, new-replaced |
| 6. Patients whose symptoms appear >30 days after mTBI, we suggest a focused diagnostic work-up for specific symptoms . | Weak for | Amended, not reviewed |

*For additional information, please refer to Grading Recommendations in the CPG.

† For additional information, please refer to Recommendation Categorization and Appendix E: 2009 Recommendation Categorization in the CPG.

VI. Recommendations

B. Co-occurring Conditions



| Recommendation | Strength* | Category† |
|--|------------|-----------------------|
| 7. We recommend assessing patients with symptoms attributed to mTBI for psychiatric symptoms and comorbid psychiatric disorders including major depressive disorder (MDD), posttraumatic stress disorder (PTSD), substance use disorders (SUD) and suicidality. Consult appropriate VA/DoD clinical practice guidelines. | Strong for | Amended, not reviewed |

*For additional information, please refer to Grading Recommendations in the CPG.

† For additional information, please refer to Recommendation Categorization and Appendix E: 2009 Recommendation Categorization in the CPG.

VI. Recommendations

C. Treatment- Etiology Effects



| | Recommendation | Strength* | Category † |
|--|---|----------------|-----------------------|
| General | 8. We suggest considering, and offering as appropriate, a primary care, symptom-driven approach in the evaluation and management of patients with a history of mTBI and persistent symptoms. | Weak for | Amended, not reviewed |
| a) Etiology effect on Options & Outcomes | 9. We recommend <u>not</u> adjusting treatment strategy based on mechanism of injury. | Strong against | New-added, reviewed |
| a) Etiology effect on Options & Outcomes | 10. We recommend <u>not</u> adjusting outcome prognosis based on mechanism of injury. | Strong against | New-added, reviewed |

* For additional information, please refer to Grading Recommendations in the CPG.

† For additional information, please refer to Recommendation Categorization and Appendix E: 2009 Recommendation Categorization in the CPG.

VI. Recommendations

C. Treatment: Headache



| | Recommendation | Strength* | Category † |
|-------------|---|-----------|-------------------------|
| b) Headache | <p>11. We suggest that the treatment of headaches should be individualized and tailored to the clinical features and patient preferences. The treatment may include:</p> <ul style="list-style-type: none"> a. Headache education including topics such as stimulus control, use of caffeine/tobacco/alcohol and other stimulants b. Non-pharmacologic interventions such as sleep hygiene education, dietary modification, physical therapy (PT), relaxation and modification of the environment (for specific components for each symptom, see Appendix B: Clinical Symptom Management) c. Pharmacologic interventions as appropriate both for acute pain and prevention of headache attacks | Weak for | New-replaced, reviewed, |

* For additional information, please refer to Grading Recommendations in the CPG.

† For additional information, please refer to Recommendation Categorization and Appendix E: 2009 Recommendation Categorization in the CPG.

Symptom Management: Headache



| Symptom | Non-Pharmacologic Treatment | Pharmacologic Treatment | Referral After Failed Response to Treatment |
|--|---|--|--|
| Headache <i>(treatment approach is dependent upon headache type)</i> | <ul style="list-style-type: none"> ▪ Education including topics such as: <ul style="list-style-type: none"> • stimulus control • sleep hygiene • dietary modification • environment modifications ▪ Physical therapy (for tension headaches of cervical origin) ▪ Biofeedback ▪ Integrative medicine ▪ Cognitive behavioral therapy ▪ Extracranial pressure ▪ Thermal therapies | <p>Tension-like Abortive: NSAIDS, aspirin, acetaminophen, combination medications (aspirin, acetaminophen, caffeine and a sedative drug)</p> <p>Tension-like Preventive: Tricyclic antidepressants, beta-blockers (propranolol), anti-convulsants (topiramate), tizanidine</p> <p>Migraine-like Abortive: NSAIDS, serotonin 5-HT receptor agonist, aspirin, acetaminophen, antiemetic agents, combination medications</p> <p>Migraine-like Preventive: Anti-convulsants (gabapentin, topiramate, divalproex sodium), beta-blockers, alpha-blockers, tricyclic antidepressants, magnesium oxide, vitamin B2</p> | <ul style="list-style-type: none"> ▪ Neurology ▪ Pain clinic |

Abbreviations: CPG: clinical practice guideline; DoD: Department of Defense; ENT: ear, nose and throat specialist; mTBI: mild traumatic brain injury; NSAIDs: nonsteroidal anti-inflammatory drugs; PM&R: physical medicine and rehabilitation; VA: Department of Veterans Affairs.

VI. Recommendations

C. Treatment- Sleep Disturbance



| | Recommendation | Strength* | Category † |
|----------------------|---|-----------|-------------------|
| f) Sleep Disturbance | <p>15. We suggest that treatment of sleep disturbance be individualized and tailored to the clinical features and patient preferences, including the assessment of sleep patterns, sleep hygiene, diet, physical activities and sleep environment. The treatment may include, in order of preference:</p> <ul style="list-style-type: none"> a. Sleep education including education about sleep hygiene, stimulus control, use of caffeine/tobacco/alcohol and other stimulants b. Non-pharmacologic interventions such as cognitive behavioral therapy specific for insomnia (CBTi), dietary modification, physical activity, relaxation and modification of the sleep environment (for specific components for each symptoms see Appendix B: Clinical Symptom Management) c. Pharmacologic interventions as appropriate to aid in sleep initiation and sleep maintenance | Weak for | Amended, reviewed |

See mTBI CPG Appendix B, and DCoE Management of Sleep Disturbances Following Concussion/mTBI

* For additional information, please refer to Grading Recommendations in the CPG.

† For additional information, please refer to Recommendation Categorization and Appendix E: 2009 Recommendation Categorization in the CPG

Symptom Management: Sleep Disturbance



| Symptom | Non-Pharmacologic Treatment | Pharmacologic Treatment | Referral After Failed Response to Treatment |
|--------------------------|---|---|--|
| Sleep disturbance | <ul style="list-style-type: none"> ▪ Education including topics such as: <ul style="list-style-type: none"> • stimulus control • sleep hygiene • dietary modification • sleep environment modification ▪ Cognitive behavioral therapy specific for insomnia ▪ Physical activity ▪ Relaxation | <ul style="list-style-type: none"> ▪ Short-term use of trazodone, mirtazapine, and tricyclic antidepressants | <ul style="list-style-type: none"> ▪ Mental health ▪ PM&R ▪ Neurology |

Abbreviations: CPG: clinical practice guideline; DoD: Department of Defense; ENT: ear, nose and throat specialist; mTBI: mild traumatic brain injury; NSAIDs: nonsteroidal anti-inflammatory drugs; PM&R: physical medicine and rehabilitation; VA: Department of Veterans Affairs .

*The three sleep disturbance sub-types that drive recommended treatment are:

- Insomnia
- Circadian Rhythm Sleep Wake Disturbance (CRSWD)
- Obstructive Sleep Apnea (OSA)

*Source: DCoE Clinical Recommendation: June 2014. Management of Sleep Disturbances Following Concussion/mTBI

VI. Treatment Recommendations and Symptom Management: Visual Symptoms



| | Recommendation | Strength* | Category † |
|--------------------|--|-----------|---------------------|
| e) Visual Symptoms | 14. There is no evidence to suggest for or against the use of any particular modality for the treatment of visual symptoms such as diplopia, accommodation or convergence disorder, visual tracking deficits and/or photophobia after mTBI. | N/A | New-added, reviewed |

| Symptom | Non-Pharmacologic Treatment | Pharmacologic Treatment | Referral After Failed Response to Treatment |
|------------------------|---|-------------------------|---|
| Visual symptoms | <ul style="list-style-type: none"> ▪ Trial of specific visual rehabilitation; prolonging therapy without patient improvement is strongly discouraged ▪ Pain management ▪ Controlling environmental light | - | <ul style="list-style-type: none"> ▪ Optometry ▪ Ophthalmology ▪ Neuro-ophthalmology ▪ Neurology ▪ Vision rehabilitation |

Abbreviations: CPG: clinical practice guideline; DoD: Department of Defense; ENT: ear, nose and throat specialist; mTBI: mild traumatic brain injury; NSAIDs: nonsteroidal anti-inflammatory drugs; PM&R: physical medicine and rehabilitation; VA: Department of Veterans Affairs .

* For additional information, please refer to Grading Recommendations in the CPG.

† For additional information, please refer to Recommendation Categorization and Appendix E: 2009 Recommendation Categorization in the CPG.

Red Flags for Visual Symptoms



Primary care providers need to be keenly aware of potential reasons for an urgent referral to an eye care provider in cases of vision loss or decline,

- diplopia, abnormal pupils, abnormal external eye exam
- abnormal visual behavior (e.g., unexpectedly bumping into things)
- abnormal eye movements (e.g., nystagmus)
- acute ocular symptoms (e.g., evidence of trauma, severe eye pain, flashes and/or floaters, severe photophobia)

(for more information refer to Appendix B – Clinical Symptom Management)

VI. Treatment Recommendations and Symptom Management: Tinnitus



| | Recommendation | Strength* | Category † |
|-------------|--|-----------|---------------------|
| d) Tinnitus | 13. There is no evidence to suggest for or against the use of any particular modality for the treatment of tinnitus after mTBI. | N/A | New-added, reviewed |

| Symptom | Non-Pharmacologic Treatment | Pharmacologic Treatment | Referral After Failed Response to Treatment |
|-----------------|---|-------------------------|---|
| Tinnitus | <ul style="list-style-type: none"> ▪ Trial of tinnitus management (e.g., white noise generator, biofeedback, hypnosis, relaxation therapy); prolonging therapy without patient improvement is strongly discouraged | - | <ul style="list-style-type: none"> ▪ ENT |

Abbreviations: CPG: clinical practice guideline; DoD: Department of Defense; ENT: ear, nose and throat specialist; mTBI: mild traumatic brain injury; NSAIDs: nonsteroidal anti-inflammatory drugs; PM&R: physical medicine and rehabilitation; VA: Department of Veterans Affairs

* For additional information, please refer to Grading Recommendations in the CPG.

† For additional information, please refer to Recommendation Categorization and Appendix E: 2009 Recommendation Categorization in the CPG.

Symptom Management: Hearing Difficulties



| Symptom | Non-Pharmacologic Treatment | Pharmacologic Treatment | Referral After Failed Response to Treatment |
|-----------------------------|---|-------------------------|--|
| Hearing difficulties | <ul style="list-style-type: none"> ▪ Reassurance ▪ Pain management ▪ Controlling environmental noise ▪ White noise generators | - | <ul style="list-style-type: none"> ▪ ENT ▪ Audiology |

Abbreviations: CPG: clinical practice guideline; DoD: Department of Defense; ENT: ear, nose and throat specialist; mTBI: mild traumatic brain injury; NSAIDs: nonsteroidal anti-inflammatory drugs; PM&R: physical medicine and rehabilitation; VA: Department of Veterans Affairs

VI. Recommendations

C. Treatment - Dizziness/Disequilibrium



| | Recommendation | Strength* | Category † |
|-------------------------------|---|-----------|-------------------|
| c) Dizziness & Disequilibrium | 12. In individuals with a history of mTBI who present with functional impairments due to dizziness, disequilibrium, and spatial disorientation symptoms, we suggest that clinicians offer a short-term trial of specific vestibular, visual, and proprioceptive therapeutic exercise to assess the individual’s responsiveness to treatment. Refer to occupational therapy (OT), physical therapy (PT) or other vestibular trained care provider as appropriate. <i>A prolonged course of therapy in the absence of patient improvement is strongly discouraged.</i> | Weak for | Amended, reviewed |

* For additional information, please refer to Grading Recommendations in the CPG.

† For additional information, please refer to Recommendation Categorization and Appendix E: 2009 Recommendation Categorization in the CPG.

Symptom Management: Dizziness/Disequilibrium



| Symptom | Non-Pharmacologic Treatment | Pharmacologic Treatment | Referral After Failed Response to Treatment |
|--------------------------------------|---|--|--|
| Dizziness and dis-equilibrium | <ul style="list-style-type: none"> ▪ Trial of vestibular, visual, and proprioceptive therapeutic exercise; a prolonged course of therapy in the absence of patient improvement is strongly discouraged | <ul style="list-style-type: none"> ▪ Medications should only be considered if symptoms are severe enough to significantly limit functional activities; trials should be brief and optimally less than a week ▪ Vestibular suppressants; first-line medication: meclizine, followed by scopolamine and dimenhydrinate | <ul style="list-style-type: none"> ▪ ENT ▪ Neurology ▪ Physical therapy |

Abbreviations: CPG: clinical practice guideline; DoD: Department of Defense; ENT: ear, nose and throat specialist; mTBI: mild traumatic brain injury; NSAIDs: nonsteroidal anti-inflammatory drugs; PM&R: physical medicine and rehabilitation; VA: Department of Veterans Affairs

VI. C. Treatment Recommendations and Symptom Management: Behavioral



| | Recommendation | Strength* | Category † |
|------------------------|--|------------|-------------------|
| g) Behavioral Symptoms | 16. We recommend that the presence of psychological or behavioral symptoms following mTBI should be evaluated and managed according to existing evidence-based clinical practice guidelines, and based upon individual factors and the nature and severity of symptoms. | Strong for | Amended, reviewed |

| Symptom | Non-Pharmacologic Treatment | Pharmacologic Treatment | Referral After Failed Response to Treatment |
|----------------------------|--|-----------------------------------|---|
| Behavioral symptoms | <i>See applicable VA/DoD CPGs</i> <ul style="list-style-type: none"> ▪ Cognitive behavioral therapy | <i>See applicable VA/DoD CPGs</i> | |

Abbreviations: CPG: clinical practice guideline; DoD: Department of Defense; ENT: ear, nose and throat specialist; mTBI: mild traumatic brain injury; NSAIDs: nonsteroidal anti-inflammatory drugs; PM&R: physical medicine and rehabilitation; VA: Department of Veterans Affairs .

* For additional information, please refer to Grading Recommendations in the CPG.

† For additional information, please refer to Recommendation Categorization and Appendix E: 2009 Recommendation Categorization in the CPG

VI. Recommendations

C. Treatment- Cognitive Symptoms



| | Recommendation | Strength* | Category † |
|-----------------------|---|-----------|-----------------------|
| h) Cognitive Symptoms | 17. We suggest that patients with a history of mTBI who report cognitive symptoms that do not resolve within 30-90 days and have been refractory to treatment for associated symptoms (e.g., sleep disturbance, headache) be referred as appropriate for a structured cognitive assessment or neuropsychological assessment to determine functional limitations and guide treatment. | Weak for | Amended, not reviewed |

* For additional information, please refer to Grading Recommendations in the CPG.

† For additional information, please refer to Recommendation Categorization and Appendix E: 2009 Recommendation Categorization in the CPG

VI. Recommendations

C. Treatment- Cognitive Symptoms (cont.)



| | Recommendation | Strength* | Category † |
|-----------------------|---|--------------|------------------------|
| h) Cognitive Symptoms | 18. We suggest that individuals with a history of mTBI who present with symptoms related to memory, attention or executive function problems that do not resolve within 30-90 days and have been refractory to treatment for associated symptoms should be referred as appropriate to cognitive rehabilitation therapists with expertise in TBI rehabilitation. We suggest considering a short-term trial of cognitive rehabilitation treatment to assess the individual patient responsiveness to strategy training, including instruction and practice on use of memory aids, such as cognitive assistive technologies (AT). <i>A prolonged course of therapy in the absence of patient improvement is strongly discouraged.</i> | Weak for | New-replaced, reviewed |
| h) Cognitive Symptoms | 19. We suggest <i>against</i> offering medications, supplements, nutraceuticals or herbal medicines for ameliorating the neurocognitive effects attributed to mTBI | Weak against | Amended, not reviewed |

* For additional information, please refer to Grading Recommendations in the CPG.

† For additional information, please refer to Recommendation Categorization and Appendix E: 2009 Recommendation Categorization in the CPG

Symptom Management: Cognitive Symptoms



| Symptom | Non-Pharmacologic Treatment | Pharmacologic Treatment | Referral After Failed Response to Treatment |
|---------------------------|---|-------------------------|--|
| Cognitive symptoms | <ul style="list-style-type: none"> ▪ Trial of cognitive rehabilitation ▪ Psychoeducation ▪ Supportive stress management ▪ Cognitive-behavioral interventions ▪ Motivational interviewing | - | <ul style="list-style-type: none"> ▪ Cognitive rehabilitation |

Abbreviations: CPG: clinical practice guideline; DoD: Department of Defense; ENT: ear, nose and throat specialist; mTBI: mild traumatic brain injury; NSAIDs: nonsteroidal anti-inflammatory drugs; PM&R: physical medicine and rehabilitation; VA: Department of Veterans Affairs .

VI. Recommendations

D. Setting of Care



| Recommendation | Strength* | Category † |
|--|--------------|------------------------|
| <p>20. We suggest <u>against routine</u> referral to specialty care in the majority of patients with a history of mTBI.</p> | Weak against | Amended, reviewed |
| <p>21. If the patient’s symptoms do not resolve within 30-90 days and are refractory to initial treatment in primary care and significantly impact activities of daily living (ADLs), we suggest consultation and collaboration with a locally designated TBI or other applicable specialist.</p> | Weak for | Amended, reviewed |
| <p>22. For patients with persistent symptoms that have been refractory to initial psychoeducation and treatment, we suggest referral to case managers within the primary care setting to provide additional psychoeducation, case coordination and support.</p> | Weak for | Amended, reviewed |
| <p>23. There is insufficient evidence to recommend for or against the use of interdisciplinary/multidisciplinary teams in the management of patients with chronic symptoms attributed to mTBI.</p> | N/A | New-replaced, reviewed |

* For additional information, please refer to Grading Recommendations in the CPG.

† For additional information, please refer to Recommendation Categorization and Appendix E: 2009 Recommendation Categorization in the CPG

Educational materials and resources



- VA/DoD CPG of mTBI
 - <http://www.healthquality.va.gov/guidelines/Rehab/mtbi/>
- Defense Centers of Excellence (DCoE)
 - <http://www.dcoe.mil/TraumaticBrainInjury.aspx>
- Mild Traumatic Brain Injury Rehabilitation Toolkit
 - <http://www.cs.amedd.army.mil/borden/Portlet.aspx?ID=065de2f7-81c4-4f9d-9c85-75fe59dbae13>
- Defense and Veterans Brain Injury Center (DVBIC)
 - DVBIC Patient and Provider Educational Materials
 - <http://dvbic.dcoe.mil/resources>
 - DVBIC Publications List
 - <http://dvbic.dcoe.mil/research/browse/dvbic-publications>

Questions?

- Please submit your questions now via the question box located on the left side of the screen.



Continuing Education Details



VHA participants:

- Must be preregistered to complete the evaluation in TMS.
- Email Erica.Jackson2@va.gov if you were unable to register before the webinar started.
- Certificate of completion may be printed through TMS upon successful completion.

Non-VA participants:

- For DoD/Non-VA participants, your certificate will be available on the TRAIN site under “My Certificates” after successful completion of the evaluation.

VA/DVBIC Clinical Grand Rounds

Contact Information



Point of Contact for Grand Rounds

■ DoD

- Maryanne Sacco
- maryanne.sacco@gdit.com

■ VHA and all other federal partners:

- Erica Jackson
- Erica.Jackson2@va.gov

Save the Date



- DCoE 2016 Summit.
 - **Sept. 13-15, 2016**
 - State of the Science: Advances in Diagnostics and Treatments of Psychological Health and TBI in the Military Health Care
 - <http://www.dcoe.mil/Training/Events.aspx>
- VA/DVBIC TBI Clinical Grand Rounds Webinar
 - **Sept. 30, 2016**; 12-1:15 p.m. (ET)
 - Art and Mind-Body Therapies for Persons with TBI
 - <https://dvbic.dcoe.mil/training/grand-rounds>