Mild Traumatic Brain Injury Pocket Guide (CONUS)

DEFENSE CENTERS OF EXCELLENCE
For Psychological Health & Traumatic Brain Injury

PURPOSE OF THIS GUIDE

The purpose of this Mild Traumatic Brain Injury (TBI) Pocket Guide is to provide primary care providers in the Continental United States (CONUS) with an all-encompassing, quick reference that includes clinical guidance in assessing and treating service members and veterans who have sustained a mild TBI. Mild TBI is also known as concussion. The term "mild TBI (mTBI)" will be used throughout this guide.

This pocket guide was developed by the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE) and the Defense and Veterans Brain Injury Center (DVBIC).

TBI BASICS

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DoD Definition (2007)

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

- Any period of loss of or a decreased level of consciousness (LOC)
- Any loss of memory for events immediately before or after the injury [post-traumatic amnesia (PTA)]
- Any alteration in mental state at the time of the injury (confusion, disorientation, slowed thinking, etc.)
- Neurological deficits (weakness, loss of balance, change in vision, praxis, paresis/plegia, sensory loss, aphasia, etc.) that may or may not be transient
- Intracranial lesion

External forces may include any of the following events:

- Head being struck by an object
- Head striking an object
- Brain undergoing an acceleration/deceleration movement without direct external trauma to the head
- Foreign body penetrating the brain
- Forces generated from events such as blast or explosion, or other force yet to be defined

Causes

In the military the leading causes of TBI are:

- Blasts
- Fragments
- Bullets
- Motor vehicle crashes
- Falls

Severity Ratings for TBI

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)	≤ 24 hrs	> 24 hrs	> 24 hrs
Post-traumatic Amnesia (PTA)	≤ 24 hrs	> 24 hrs and < seven days	> seven days
Glasgow Coma Scale (GCS) (best available score in first 24 hours)*	Score 13–15	Score 9–12	Score 3–8

* GCS is not part of the official DoD definition for TBI but is commonly used in practice

VA/DoD CPG

The following clinical recommendations contained in the VA/DoD CPG for the Management of Concussion/ Mild TBI (2009) and the Updated DoD mild TBI Clinical Guidance (2008) document are based on the best information available at the time of publication. They are designed to provide information and assist in decision-making. They are not intended to define a standard of care and should not be construed as one. In addition, they should not be interpreted as prescribing an exclusive course of management. Every health care professional making use of these guidelines is responsible for evaluating the appropriateness of applying them.

SUMMARY OF DEPARTMENT OF VETERANS AFFAIRS/DEPARTMENT OF DEFENSE (VA/DoD) CLINICAL PRACTICE GUIDELINE (CPG) FOR THE MANAGEMENT OF CONCUSSION/MILD TBI (2009)

Scope

This guideline is relevant to all healthcare professionals providing or directing treatment services to patients with mild TBI in any VA or DoD healthcare setting, including both primary and specialty care.

The guideline DOES apply to the following:

1. Adult patients (18 years or older)
   and
2. Diagnosed with mild TBI
   and
3. Complaining of symptoms related to the injury
   and
4. Treated in a VA or DoD clinical setting for these symptoms at least seven days after the initial head injury

The guideline DOES NOT address the following:

1. Management of mild TBI in the acute phase (< seven days post injury)
2. Management of moderate or severe TBI
3. Mild TBI presented as polytrauma and managed in an inpatient setting
4. Mild TBI in children

There are three algorithms contained in the CPG: 1) Initial Presentation, 2) Management of Symptoms and 3) Follow-up of Persistent Symptoms. The information within each algorithm, summarized in the following pages, helps identify the best interventions and timing of services for patients in order to optimize quality of care and clinical outcomes. The full CPG can be accessed at *http://www.healthquality.va.gov/mtbi/concussion_mtbi_full_1_0.pdf.*

Summary of Algorithm A: Initial Presentation

Step One: Identify urgent or emergent conditions

Indicators for immediate emergency evaluation and treatment:

- Current altered consciousness
- Progressively declining neurological exam
- Pupillary asymmetry
- Seizures
- Repeated vomiting
- Double vision
- Worsening headache
- Cannot recognize people or disoriented to place
- Behaves unusually or confused and irritable
- Slurred speech
- Unsteady on feet
- Weakness or numbness in arms/legs

Note:

- If person is currently deployed, follow guidance for management of mild TBI in deployed setting
- If person presents immediately after injury (< seven days), then follow local guidance or emergency department (ED) protocols

Step Two: Evaluate for diagnosis of mild TBI

- Loss of or decreased level of consciousness (< 30 minutes)
- Loss of memory for events immediately before or after injury (≤ 24 hrs)
- Alteration of consciousness/mental state (≤ 24 hrs)
- Normal structural computerized axial tomography (CT) imaging
- GCS Score: 13–15 (best value within first 24 hours if available)

Note: if diagnosis is moderate or severe TBI, exit this algorithm

Step Three: Identify if related symptoms are present

Physical	Cognitive	Behavioral/Emotional
• Headache • Dizziness • Balance disorder • Nausea • Fatigue • Sleep disturbance • Blurred vision • Light sensitivity • Hearing loss • Noise sensitivity • Seizures • Transient neurological abnormalities • Numbness and tingling	Difficulties with: • Attention • Concentration • Memory • Processing speed • Judgment • Executive control	• Depression • Anxiety • Agitation • Irritability • Impulsivity • Aggression

Step Four: Determine if symptoms are related to mild TBI	
Symptoms present, related and on treatment	• Refer to **Algorithm C: Follow-up of Persistent Symptoms**
Symptoms present, related and not on treatment	• Refer to **Algorithm B: Management of Symptoms**
Symptoms present but unrelated	• Provide education and access information • Screen for – Stress disorders – Substance use disorders – Mental health conditions • Follow up as indicated

Summary of Algorithm B: Management of Symptoms

Step One: History and Physical Exam	
Complete History	• Evaluate signs and symptoms indicating potential for neurosurgical emergencies that require immediate referrals • Confirm diagnosis of mild TBI • Characterize initial injury and identify detailed information of the injury event – Mechanism of injury – Duration and severity of alteration of consciousness – Immediate symptoms • Patient's symptoms and health concerns – Symptom course – Prior treatment • Determine if symptoms are related to the mild TBI • Pre-morbid conditions, potential co-occurring conditions, other psychosocial risk factors • Assess danger to self or others
Physical Exam	• Focused neurological examination – Mental Status Examination (MSE) – Cranial nerve testing – Extremity tone testing – Deep tendon reflexes – Strength – Sensation – Postural stability (Romberg's Test, dynamic standing) • Focused vision examination – Gross visual acuity – Eye movement – Binocular function – Visual fields/attention testing • Focused musculoskeletal examination of head and neck – Range of motion of neck and jaw – Focal tenderness – Referred pain
Lab Tests	• Not necessary for mild TBI (may consider lab tests for evaluating other causes of symptoms)
Imaging	• Not recommended for patients who sustained mild TBI beyond 72 hours post-injury (emergency phase) unless condition deteriorates or red flags noted • CT scan – Modality of choice for acute mild TBI – Absence of abnormal findings does not preclude presence of mild TBI

Step Two: Clarify Symptoms

- Duration
- Frequency
- Onset and triggers
- Location
- Previous episodes
- Intensity or severity
- Previous treatment and response
- Patient perception of symptoms
- Impact on functioning
- Assess exacerbating factors:
  - Prescribed and over-the-counter (OTC) medications
  - Caffeine, tobacco and other stimulants (energy drinks)
  - Sleep patterns and sleep hygiene
  - Co-existing illnesses

Step Three: Evaluate and Treat Co-occurring Disorders

Comorbid psychiatric problems, whether or not regarded as etiologically related to the mild TBI, should be treated aggressively using appropriate psychotherapeutic and pharmacologic interventions. Comorbid psychiatric problems may include, but are not limited to:

- Major depressive episode
- Anxiety disorders [including post-traumatic stress disorder (PTSD)]
- Substance use disorder

Step Four: Determine Treatment Plan

- Document summary of patient's problems
- Develop treatment plan that includes severity and urgency for treatment interventions
- Discuss with patient the general concept of mild TBI sequelae, treatment options (and associated risks/benefits) and prognosis to determine patient's preferences
- Emphasize good prognosis and empower patient for self-management
- Referral to specialty care is not required in majority of patients with mild TBI. Most patients with symptoms following a single mild TBI of recent onset can be successfully managed in the primary care setting
- Treatment should be coordinated and may include consultation with rehabilitation therapists, pharmacy, collaborative mental health and social support

Step Five: Educate Patient and Family Early and Often (Written and Verbal)

- Review potential symptoms of mild TBI
- Review expected outcomes and recovery
  - Reassurance on positive expectation of recovery
- Educate about prevention of further injuries
- Techniques to manage stress (see "Step Six" below, refer to Patient Education tab and DVBIC's educational materials available for download at *http://www.dvbic.org*)

Step Six: Provide Early (Non-pharmacologic) Interventions

- Sleep hygiene education (refer to Patient Education Tab, "Healthy Sleep")
- Relaxation techniques
- Limiting use of caffeine, tobacco and alcohol
- Graded return to exercise with close monitoring
- Monitored progressive return to normal duty, work or activity

Step Seven: Consider Case Management

- Consider case management if all symptoms not sufficiently resolved within days. Assign case manager to:
  - Follow up and coordinate (remind) future appointments
  - Reinforce early interventions and education
  - Address psychosocial issues (financial, family, housing or school/work)
  - Connect to available resources

Step Eight: Initiate Symptom-based Treatment

See specific symptom tabs for symptom management (starting on page 19)

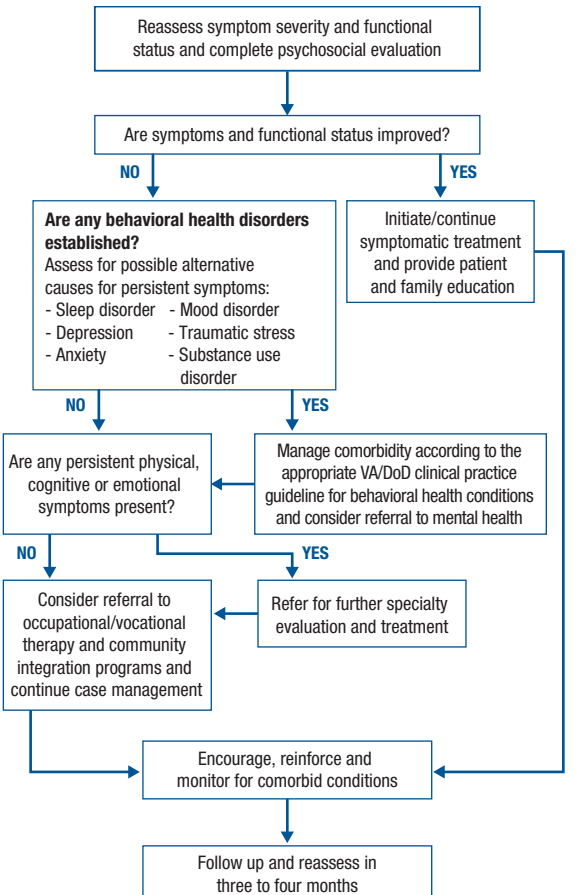
Step Nine: Follow Up and Reassess

- Follow up and reassess in four to six weeks, sooner if clinically indicated
- Encourage and reinforce positive expectation of recovery
- Monitor for comorbid conditions
- Address:
  - Return to work, duty or activity
  - Community participation
  - Family/social issues

Step Ten: If Symptoms Are Not Sufficiently Resolved

- Continue to **Algorithm C: Follow-up of Persistent Symptoms**

Summary of Algorithm C: Follow-up of Persistent Symptoms (persistent symptoms beyond four to six weeks not responding to treatment)



Return to Duty Guidance

When to Return to Duty/Activity	When to Apply Duty Restrictions
• Provide period of rest for individuals with post-injury symptoms • Encourage gradual return to normal activity as clinically appropriate • Suggest exertional testing if a person's normal activity involves significant physical activity • If exertional testing results in a return of symptoms, recommend additional rest until symptoms resolve	• A duty specific task cannot be safely or competently completed based on symptoms • The work/duty environment cannot be adapted to the patient's symptom-based limitation • The deficits cannot be accommodated • Symptoms reoccur

Referral Guidance

When to Refer to Specialists
• Symptoms cannot be linked to an event (suspicion of another diagnosis) • An atypical symptom pattern or course is present • Findings indicate an acute neurological condition requiring urgent intervention • Presence of other major comorbid conditions requiring special evaluation

MANAGEMENT OF HEADACHES

MANAGEMENT OF HEADACHES

Background

Headaches	
Prevalence in mild TBI	• 90% (post-traumatic) headaches
Manifestations	• Tension-type (including cervicogenic component) • Migraine • Combined migraine and tension-type

Assessment, Referral and Treatment

Post-traumatic Headaches (Includes Tension and Migraine)	
History	• Characterize headaches • Pre-existing headache disorder • Assess sleep/wake cycles (lack of sleep is an exacerbating factor and mild TBI is also associated with impaired sleep)
Physical Examination	• Head and neck • Cranial nerve, fundoscopic and pupil exam • Muscle strength and tone • Gait • Upper and lower extremity coordination
Medication Review	• Chronic daily use of non-steroidal anti-inflammatory drugs (NSAIDs) or acetaminophen (alone or combined with caffeine) may lead to rebound headaches • Excessive use or rapid withdrawal of caffeine or tobacco can trigger headaches
Referral*	• Emergency Department – Fever – Stiff neck • Neurology – Worsening headache – Seizures – Blackouts – Any abnormality found during neurological or musculoskeletal exam
Patient Education	• Perform series of neck stretches • Review sleep posture and make adjustments to ensure neck and spine are in a neutral position • Consult with healthcare professional regarding any OTC medications or if interventions are not effective after two to four weeks

Assessment, Referral and Treatment, cont.

Post-traumatic Headaches (Includes Tension and Migraine), cont.	
Patient Education, cont.	• Awareness and avoidance of migraine triggers • Maintain regular exercise, sleep and meal schedules • Recognize warning signs (aura) • Headache diary

	Tension	Migraine	Chronic Daily
Pharmacologic Treatment	Typically given for more mild tension headache: • Ibuprofen 400-600mg TID-QID • Naproxen 500mg BID • Acetaminophen • Aspirin • Choline-magnesium-trisalisylate Typically given for more moderate/severe tension headache:* • Ibuprofen 600-800mg • Naproxen • Compazine • Phenergan *Note: Medications for tension-type headaches should be given PRN at onset, no more than three days/week. Persistent usage can lead to rebound headaches.*	Abortive agents typically given for more mild migraine headache: • Ibuprofen 400-600mg TID-QID • Naproxen 500mg BID Abortive agents typically given for more moderate/severe migraine headache:* • Ibuprofen 600-800mg • Naproxen • Compazine • Phenergan • Triptans – Zolmitriptan oral 5–10mg at onset, may repeat once if headache not resolved in two hours *Note: VA/DoD mild TBI CPG recommends initiating dosing of Zolmitriptan oral at 5–10mg. While this may occur in practice, official drug manufacturer dosing recommendations suggest initiation with 2.5–5mg. Maximum dosing: 10mg/24 hours* – Zolmitriptan nasal one spray of 5mg, may repeat once if headache not resolved in two hours. Maximum daily dose should not exceed 10mg/day	Prevention of chronic daily headache:* • Propanolol 10–240mg (Causes decrease in blood pressure and may reduce PTSD symptoms) • Amitriptyline or Nortriptyline 10–100mg QHS (may also assist with sleep) • Paroxetine (antidepressant with possible headache benefit) • Fluoxetine (antidepressant with possible headache benefit) • Gabapentin 300–900mg QHS to BID • Sodium valproate 500–1500mg (draw levels) • Topirimate 25–100mg QDAY to BID

	Tension, cont.	Migraine, cont.	Chronic Daily, cont.
Pharmacologic Treatment, cont.		– Sumatriptan oral 50–100mg at onset, may repeat once if headache not resolved in two hours – Sumatriptan nasal one spray of 10mg, may repeat in two hours. Maximum daily dose should not exceed 40mg/day – Sumatriptan injectable 6mg SQ, may repeat in one hour. Maximum daily dose not to exceed 12mg/day *Note: Abortive agents for migraine headaches should be given PRN at onset, no more than three days/week. Persistent usage can lead to rebound headaches.* Prophylactic agents: • Divalproex sodium extended release 250mg BID. May increase by 250mg/day every week to maximum of 1000mg/day (draw levels) • Topiramate 25–100mg BID • Metoprolol 25mg BID. May increase every three to four weeks up to 100mg BID if needed	

	All Headaches
Non-pharmacologic Treatment	• Relaxation training and biofeedback in combination with medication • Physical therapy to exercise neck muscles and maintain appropriate range of motion • Increased physical activity may help to reduce frequency and intensity of headaches • Visualization • Extracranial pressure • Regular exercise and maintenance of regular meal schedule (may be more effective as preventatives than as treatments) • Cold compress or alternate ice and heat on neck and head two to three times per day for about 20 minutes • Therapeutic massages to help with headaches from neck tension

* Updated DoD mild TBI Clinical Guidance (2008)

MANAGEMENT OF OTHER SYMPTOMS

MANAGEMENT OF DIZZINESS AND DISEQUILIBRIUM

Background

Dizziness	
Prevalence in mild TBI	• 30%
Manifestations	• Impaired balance • Altered coordination

Assessment, Referral and Treatment

Dizziness and Disequilibrium		
Physical Assessment	• Neurological examination • Vision – Acuity – Tracking – Saccades – Nystagmus • Auditory – Hearing screen – Otoscopic exam • Sensory – Sharp – Light touch – Proprioception – Vibration • Motor – Power – Coordination	• Vestibular – Dynamic acuity – Positional testing • Evaluation of functional and balance activities – Sitting and standing ▪ Romberg with eyes open and closed ▪ Single leg stance – Transfers ▪ Supine-sit ▪ Sit-stand – Gait ▪ Walking ▪ Tandem walking ▪ Turning • Dizziness Handicap Inventory (DHI)
Medication Review*	Dizziness included as potential side effect for the following medications: • Stimulants • Benzodiazepines • Tricyclics • Monoamine oxidase inhibitors • Tetracyclics	• Neuroleptics • Anticonvulsants • Selective serotonin agonists • Beta blockers • Cholinesterase inhibitors
Referral*	• Emergency Department – Cerebrospinal Fluid (CSF) leak	• Neurology – Lateral abnormality – Nystagmus – Abnormal Romberg

Dizziness and Disequilibrium, cont.	
Referral, cont.*	• Ear, Nose and Throat (ENT)/ Audiology/Vestibular rehabilitation (dependent on local resources) – Positive Dix Hallpike – DHI score > 1 or persistent dizziness complaints
Pharmacologic Treatment	• Not shown to be effective in chronic dizziness after mild TBI • Consider only if symptoms are severe enough to significantly limit functional activities and should be limited to two weeks • May be helpful during acute period • Meclizine 12.5–50mg Q4–6 hrs • Scopolamine 0.5mg patch Q3 days • Dimenhydrinate 50mg PO Q4-6 hours • Lorazepam 0.5mg PO BID • Clonazepam 0.25–0.5mg PO BID • Diazepam 2–10mg PO, IM or IV
Non-pharmacologic Treatment	• Vestibular and balance rehabilitation
Patient Education	• Perform neck stretches • Modify activity and change positions slowly • Change sleep position • Perform vestibular rehabilitation exercises

* Updated DoD mild TBI Clinical Guidance (2008)

MANAGEMENT OF FATIGUE AND SLEEP SYMPTOMS

Background

	Fatigue	Sleep Disturbances
Prevalence in mild TBI	• Third most common symptom	• Can occur acutely after injury
Manifestations	• Primary effect (central nervous system-related) • Secondary effect (co-existing depression or sleep disturbances)	• Circadian rhythm sleep disorders • Delayed sleep pattern syndrome • Irregular sleep-wake pattern

Assessment, Referral and Treatment

	Fatigue	Sleep Disturbances
History	• Pre/post-injury level of – Physical activity – Cognitive function – Mental health • Identify and treat underlying medical and psychological disorders	Evaluate for: • Sleep routine • Sleep activity • Nightmares and frightened arousal • Other current health conditions that might contribute (i.e., chronic pain) • Potential cormorbid psychiatric conditions including depression and anxiety
Physical Assessment	• Multidimensional Assessment of Fatigue (MAF) • Fatigue Impact Scale (FIS) • Fatigue Assessment Instrument (FAI) • Laboratory tests – Complete blood count (CBC) – Metabolic panel – Vitamin B12 and folate – Thyroid function test – Erythrocyte Sedimentation Rate (ESR)	• Examine neck size, airway, height, weight • Administer Epworth Sleepiness Scale (ESS) • Consider administering Pittsburgh Sleep Quality Index (PSQI)
Medication Review*	• If medication appears contributory, perform Applied Behavioral Analysis (ABA) trial to determine the association	• Medication and supplement use
Referral*	*Not included in guidance*	• Sleep study referral – Apnea – ESS >12 – Body Mass Index (BMI) >30

	Fatigue, cont.	Sleep Disturbances, cont.
Pharmacologic Treatment	• Address modifiable factors prior to initiating pharmacotherapy • Persistent symptoms (> four weeks) without improvement with management of sleep, pain, depression and lifestyle, may consider neurostimulant (contraindicated if history of substance abuse): – Methylphenidate 5mg Q 0800 and Q 1300. Increase total daily dose by 5mg Q 2 weeks to maximum dose of 20mg BID – Modafanil 100mg QAM. Increase by 100mg, using split daily dosing up to maximum of 400mg/day • Amantadine 100–400mg QD • Medication trial for at least three months	• Zolpidem 5mg QHS. If poor results after three nights, may increase to 10mg QHS • Zolpidem 5–10mg QHS max duration 10 days* • Trazodone 25–50mg QHS max dose 150mg (sleep maintenance)* • Amitriptyline 25mg QHS max dose 100mg (headache benefit)*
Non-pharmacologic Treatment	• Well balanced meals • Sleep hygiene • Regular exercise • Cognitive behavioral therapy and physical therapy to improve functional performance	• Sleep hygiene • Cognitive behavioral therapy focused on sleep with additional behavioral interventions to include sleep restriction, stimulus control, and relapse prevention techniques • Reduce stimulation before bedtime
Patient Education	• Identify factors contributing to fatigue • Eat well-balanced meals • Practice sleep hygiene • Maintain regular exercise	• No caffeine, heavy exercise, alcohol, nicotine, power drinks, stimulants or heavy meals three hours prior to bedtime • Avoid bright light exposure near bedtime • Keep regular bedtime and wakeup hours • Foster quiet, pleasant sleep environment

	Fatigue, cont.	Sleep Disturbances, cont.
Patient Education, cont.		• Stop work or TV viewing at least one hour before bedtime • Use bed only for sleep and sex • Reduce or eliminate daytime naps • Consult with healthcare professional before taking any OTC medications or supplements • Restrict nighttime sleep period to eight hours • Engage in daytime physical and mental activities (within limits of individual's capacity) • Go to another room if sleep does not come within 20–30 minutes • Have a relaxing bedtime routine

* Updated DoD mild TBI Clinical Guidance (2008)

MANAGEMENT OF VISION, HEARING AND OLFACTORY SYMPTOMS

Background

	Vision	Hearing	Olfactory
Prevalence in mild TBI	• 50% (approximately)	• 75% (blast-related mild TBI)	• < 25%
Manifestations	• Sensitivity to light, diplopia and blurring	• Sensitivity to noise, decreased auditory acuity	• Post-traumatic olfactory deficits (anosmia)

Assessment, Referral and Treatment

	Vision	Hearing	Olfactory
History	• Pre-injury visual deficits	• Pre-injury hearing deficits (common)	• Pre-injury causes of anosmia
Physical Assessment	• Ophthalmologic examination – Extraocular movements – Pupils – Visual fields by confrontation – Fundoscopic exam – Visual acuity	• Otologic examination • Bedside hearing test • Audiogram (if available)	• Perform nasal and oropharyngeal examination • Perform depression screen
Medication Review	*Not included in guidance*	• Review medications for ototoxicity	*Not included in guidance*
Referral	• Optometry (request ocular testing) and Ophthalmology • Neurology – Papilledema – Cranial nerve deficit	• Audiology (if no other cause is found) • ENT* (Hemotympanum, foreign body, tympanic membrane perforation)	• ENT (if needed)
Non-pharmacologic Treatment	• Initial use of sunglasses followed by formal weaning program (decrease by 15 minutes every two hours) • Control environmental light • Intermittent patching for double vision • Provide reassurance • Manage pain	• Reassurance • Pain management • Control environmental noise • White noise generators	• Reassurance and monitoring • Increase spicing of foods (+/- dietary referral) • Monitor weight

* Updated DoD mild TBI Clinical Guidance (2008)

MANAGEMENT OF IRRITABILITY*

Background

Irritability		
Manifestations	• Anger • Depression • Mood swings	• Anxiety • Tension • Easily overwhelmed

Assessment, Referral and Treatment

Management of Irritability	
History	• Evaluate specific history and symptoms: – Physical fighting – Alcohol intake – Relationship problems – Suicidal – Homicidal
Physical Assessment	• Administer PTSD Checklist – Military Version (PCL-M) screening questionnaire • Consider Patient Health Questionnaire (PHQ-9) or other depression inventory
Referral	Psychiatry, psychology and social work • Outward violence • Excessive alcohol intake • Suicidal ideation • Homicidal ideation
Pharmacologic Treatment	• Sertraline 25–50mg daily. Titrate Q7–10 days. Max dose 150mg/day • Citalopram 10mg /day. Titrate to max dose 40mg/day • Allow three to four week therapeutic trial of each drug • Refer to psychiatry, psychology or social work for treatment failure of two medications
Patient Education	• Understand that it is normal to have feelings of anxiety, depression, agitation and feeling overwhelmed • Replace negative thoughts and actions with positive ones • Refrain from negative self talk (putting oneself down) • Talk to someone you love and trust about these concerns • Seek emergency care for thoughts or feelings of hurting self or others • Seek psychological support if these feelings are causing problems at work or home

* Updated DoD mild TBI Clinical Guidance (2008)

MANAGEMENT OF APPETITE CHANGES AND NAUSEA

Background

	Appetite Changes	Nausea
Prevalence in mild TBI	• < 5%	• Occasionally after acute injury
Manifestations	• Change in appetite	• Usually seen in combination with dizziness (as secondary effect of medications or due to exacerbation of gastroesophageal reflux disease/gastrointestinal (GERD/GI) dysfunction

Assessment and Treatment

	Appetite Changes	Nausea
History	• Pre-injury causes of appetite issues	• Define triggers and patterns of nausea
Physical Assessment	• Perform nasal and oropharyngeal examination • Review neurovegetative signs (assess for depressed affect or clinical depression)	• Perform oropharyngeal examination
Medication Review	• Assess medication list for agents that can cause olfactory or gustatory abnormalities (centrally acting medications, in particular anti-epileptics, some antibiotics)	• Assess medication list for agents that may cause or worsen GI symptoms
Non-pharmacologic Treatment	• Reassurance and monitoring • Increase spicing of foods (+/- dietary referral) • Monitor weight	• Reassurance and monitoring • Encourage rapid management of dizziness if contributing to cause of nausea

ICD-9 CODING

DoD ICD-9 CODING GUIDANCE FOR TBI (JANUARY 2010)

Special rules apply to the coding of brain injuries, specifically to DoD extenders for capturing data on TBI. This guidance is intended for coding TBI occurring both in theater and at all military treatment facilities (MTFs). TBI is coded based on documentation contained within the medical record and in accordance with Military Health System (MHS) and ICD-9-CM coding guidelines. **In all cases of TBI encounters, at least two codes are necessary to capture the required elements.** In the case of the initial encounter these two codes are the 8XX series code and the personal history of TBI code (V15.52_X). In the case of subsequent encounters, these two codes are the appropriate symptom code(s) and the personal history of TBI code (V15.52_X). Other codes may apply, e.g., deployment codes, E codes, to encounters and should be used in accordance with general coding guidance.

Coding Initial TBI Encounter (Listed in order of precedence) • **First time the patient is seen by ANY medical professional for TBI (regardless of when the injury occurred)** • **Does not refer to the first time the patient is seen by each clinician for that particular TBI**	
8XX Series	• Code from the 8XX series • **8XX series code used only once and for initial encounter** • Clinical documentation must support that the encounter coded is the initial encounter for that particular injury • A fourth digit is required that further describes the 8XX series • A fifth digit is required to describe the level of consciousness associated with the TBI
Personal History of TBI Code	• V15.52_X codes (personal history of TBI) are used to assist the DoD in tracking TBI occurrences • The appropriate V15.52_X code should be utilized at all encounters associated with the TBI
Symptom Code(s)	• Representative of patient's presenting complaint(s)
Deployment Status Code	• V70.5_5 (during deployment encounter) • V70.5_6 (post-deployment encounter)
TBI Screening (if applicable)	• Code V80.01 • Must be coded if screening occurs at a visit • A TBI diagnosis code should not be entered for a positive screen since a positive TBI screen does not equal a TBI diagnosis

DoD ICD-9 CODING GUIDANCE FOR TBI (JANUARY 2010)

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TBI Screening (if applicable)	• Code V80.01 • Must be coded if screening occurs at a visit • A TBI diagnosis code should not be entered for a positive screen since a positive TBI screen does not equal a TBI diagnosis

Coding Subsequent TBI Encounters (Listed in order of precedence)	
Symptom Code(s)	• Symptom codes are used that best represent the patient's presenting complaint, e.g., headaches, insomnia and vertigo, as the primary code
Personal History of TBI Code	• V15.52_X codes (personal history of TBI) are used to assist the DoD in tracking TBI occurrences • The appropriate V15.52_X code should be utilized at all encounters associated with the TBI
Late Effect Code	• Used for all follow-up visits related to TBI • 905.0 (late effect of intracranial injury with skull or facial fracture) • 907.0 (late effect of intracranial injury without skull or facial fracture)
Deployment Status Code	• V70.5_5 (during deployment encounter) • V70.5_6 (post-deployment encounter)
Miscellaneous	
Inpatient or Outpatient Rehabilitation	• The first code entered is taken from the V57.XX series • Guidance for coding subsequent TBI encounters is then followed
Emotional/ Behavioral Symptom Codes	• 799-series codes allow providers to code emotional/behavioral symptoms without using mental health diagnosis codes • Do not replace mental health diagnosis codes • Used when providers observe symptoms but a mental health diagnosis is not established
E-Code	• Assigned when appropriate, e.g., E979.2—terrorism involving other explosions/fragments • Refer to Health Information Management Coding Department for further guidance
Procedure Coding for TBI Care	• CPT code 96116 is used if the Psychomotor Neurobehavioral Status Exam is completed • Includes the time for testing, interpreting and preparing the report • Coding is completed in one hour units. Anything less than one hour is claimed as one unit • Documentation must include clinically indicated portions of an assessment of thinking, reasoning and judgment, e.g., attention, acquired knowledge, language, memory and problem solving. The areas most often affected by TBI include attention, memory and problem solving so these areas should be screened if there are cognitive complaints • Other areas may be assessed as clinically indicated and may be completed in follow-up visits as long as the documentation is supportive (history and documented screening examination)

COMMONLY USED TBI CODES

TBI Screening Code	
Series Code	**Description**
V80.01	Special Screening for TBI

800-804 and 850-854 Series Codes	
Series Code	**Description** *(Note: All require a fourth and fifth digit)*
800	Fractures of vault of skull
801	Fractures of base of skull
802	Fracture of face bones
803	Other and unqualified skull fractures
804	Multiple fractures involving skull or face with other bones
850	Concussion
851	Cerebral laceration and contusion
852	Subarachnoid, subdural and extradural hemorrhage, following injury
853	Other and unspecified intracranial hemorrhages following injury
854	Intracranial injuries of other and unspecified nature

V-Code (must be used with *all* TBI encounters)	**Injury Related to Global War on Terrorism**	**Level of Severity**				
		Unknown	**Mild**	**Moderate**	**Severe**	**Penetrating**
V15.52_0	**Personal history of traumatic brain injury NOT otherwise specified**					
V15.52_1	Yes	X				
V15.52_2	Yes		X			
V15.52_3	Yes			X		
V15.52_4	Yes				X	
V15.52_5	Yes					X

V-Code, cont. (must be used with *all* TBI encounters)	Injury Related to Global War on Terrorism, cont.	Level of Severity, cont.				
		Unknown	Mild	Moderate	Severe	Penetrating
V15.52_6	No	X				
V15.52_7	No		X			
V15.52_8	No			X		
V15.52_9	No				X	
V15.52_A	No					X
V15.52_B	Unknown	X				
V15.52_C	Unknown		X			
V15.52_D	Unknown			X		
V15.52_E	Unknown				X	
V15.52_F	Unknown					X

Late Effect Code (must be used with *all* follow-up TBI encounters)	
905.0	Late effect of intracranial injury *with* skull or facial fracture
907.0	Late effect of intracranial injury *without* skull or facial fracture

Common Symptoms Associated with TBI	
Code	**Description**
	Hearing
389.9	Hearing Loss, Unspecified
388.42	Hyperacusis (oversensitivity to certain sound frequencies)
388.3	Tinnitus
	Neurologic
780.4	Dizziness, Lightheadedness
784.0	Headache
780.93	Memory Loss, Not Otherwise Specified (NOS)
438.85	Vertigo

Common Symptoms Associated with TBI, cont.	
Code	**Description**
	Psychiatric
308.9	Acute Stress Reaction, Unspecified
300	Anxiety/Irritability
311	Depression
	Sleep
780.5	Sleep Disturbance
780.52	Insomnia
	Vision
368.8	Blurred Vision, NOS
368.13	Photophobia
	Other/General
780.7	Malaise and Fatigue
787.02	Nausea

Emotional / Behavioral Symptom Codes	
Series Code	**Description**
799.21	Nervousness
799.22	Irritability
799.23	Impulsiveness
799.24	Emotional Lability
799.25	Demoralization and Apathy
799.29	Other Signs and Symptoms Involving Emotional State

E&M Coding for TBI Care	
Series Code	**Description**
99203	New Outpatient – level 3
99204	New Outpatient – level 4
99213	Established Outpatient – level 3
99214	Established Outpatient – level 4

Procedure Code for TBI Care	
Series Code	**Description**
96116	Neurobehavioral Status Exam

COGNITIVE REHABILITATION

COGNITIVE REHABILITATION FOR MILD TBI CONSENSUS CONFERENCE (2009): SUMMARY OF CLINICAL RECOMMENDATIONS*

- **Goal: To provide guidance regarding cognitive rehabilitation of chronic post-concussive symptoms in service members and veterans receiving treatment within military medical settings**
- This guidance addresses the needs of the service member or veteran who is three months or more post-concussive injury and has persistent cognitive symptoms
- The recommendations contained in the document are divided into four areas: assessment (initial and comprehensive), interventions, outcome measures and program implementation
- The term cognitive rehabilitation is used synonymously with neurorehabilitation, neuropsychological rehabilitation, cognitive remediation and cognitive retraining

Assessment (Part One): Initial Evaluation

- **Purpose:** To determine if the individual has a history of mild TBI with persistent cognitive symptoms or signs of cognitive impairment and to determine if any comorbidities exist that may affect cognitive function
- Performed by a TBI-experienced provider in the primary care setting who is also familiar with other deployment-related health conditions
- Referral to the initial evaluation can be made by any provider
- Reasons for referral: cognitive symptoms observed by the provider or reported by the patient, family or leadership; referral may also be made even if the patient does not report cognitive symptoms but displays evidence of cognitive dysfunction in daily social or occupational functioning
- Any suspicion of mild TBI with persistent cognitive symptoms warrants further cognitive evaluation

* Co-sponsored by the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE) and the Defense and Veterans Brain Injury Center (DVBIC)

Available at: *http://www.dcoe.health.mil/ForHealthPros/Resources.aspx*

Assessment (Part Two): Comprehensive Cognitive Evaluation

- **Purpose**: To determine 1) the primary factor contributing to symptoms, 2) cognitive deficits, 3) the need for cognitive rehabilitation, 4) the type of rehabilitation needed and 5) the short- and long-term goals
- Performed by an interdisciplinary group (resource dependent): neuropsychologist, occupational therapist and speech-language pathologist
- Includes a comprehensive neurological evaluation performed by a neurologist or physician with expertise in and knowledge of cognitive symptoms
- Includes a review of the medical records to look for prior cognitive disorders

Interventions

- Interventions should target attention, memory, executive functioning and social pragmatics as these are the most common cognitive domains affected by TBI
- Attention is the prerequisite for basic and complex behaviors involving memory, judgment, social perception and executive skills
- Interventions should be based on a holistic approach and include individual and group therapies within an integrated therapeutic environment
- Specific examples of empirically-supported interventions are contained in the full guidance document (*http://www.dcoe.health.mil/ForHealthPros/Resources.aspx*)

Program Implementation

- Ideal cognitive rehabilitation team: holistic, interdisciplinary team, including a designated team leader competent in brain injury rehabilitation and military culture and capable of developing a therapeutic alliance with patients
- Core elements of a successful program:
  - Assessment prior to treatment

- Identification of individualized cognitive rehabilitation goals that target symptom reduction through restoration and compensation, functional improvements/gains, and a therapeutic alliance
- Development of an interdisciplinary individualized treatment plan
- Periodic cognitive reassessment and review of goals
- Development of a well-defined discharge plan

Outcome Measures

- Cognitive rehabilitation programs must describe outcomes in order to advance the published science
- Recommended outcome measures are outlined in the 2009 Consensus Conference on Cognitive Rehabilitation for Mild TBI report and include administrative performance metrics, pre- and post-assessment differences, pre- and post-functional differences, moderating variables, discharge criteria, consumer satisfaction and aggregate program outcome data

Available at: *http://www.dcoe.health.mil/ForHealthPros/Resources.aspx*

COGNITIVE REHABILITATION PROCESS

Initial Evaluation

- Description of injury event
- Duration of loss of consciousness or altered mental status
- Confirmation of mild TBI diagnosis
- Evaluation of ongoing symptoms
- Mental health evaluation
- Evaluate for chronic pain, sleep disorders and substance abuse
- Measures of effort

Possible Outcomes Following Initial Evaluation

Outcome #1	The patient does not have any cognitive symptoms; education and reassurance to the referring provider and the patient
Outcome #2	There is no indication that the patient sustained a mild TBI but cognitive symptoms are present; refer the patient back to the primary care provider for further evaluation of a medical or mental health condition
Outcome #3	The patient has comorbidities or other symptoms that are too severe for him/her to undergo cognitive assessment • If referred to specialty clinic, assign case manager and re-evaluate in four weeks • If referred to specialty clinic and all cognitive symptoms resolve, case manager to follow via phone for six months to ensure symptoms remain resolved
Outcome #4	The patient sustained a mild TBI and has symptoms that warrant further **comprehensive cognitive evaluation**

Comprehensive Cognitive Evaluation

- Comprehensive neurological evaluation to occur prior to comprehensive cognitive evaluation
- Assessment domains:
  - Attention
  - Memory
  - Processing speed
  - Executive functioning (reasoning, problem solving, organizing, planning, self-monitoring and emotional regulation)
  - PTSD screen
  - Post-concussive syndrome symptom rating
  - Pain screen
  - Symptom validity test
  - Substance abuse screen
  - Measures of effort

Determine the Treatment Plan Upon Completion of the Comprehensive Cognitive Assessment

- Primary factor contributing to symptoms, e.g., is mild TBI the primary cause of the symptoms or is a comorbidity, such as major depression, considered the primary contributor
- Cognitive deficits associated with diagnosis of mild TBI
- Need for cognitive rehabilitation
- Type of rehabilitation needed
- Short- and long-term goals of rehabilitation

Interventions

Area of Cognitive Impairment	Empirically-supported Interventions
• Attention	• Attention process training • Working memory training
• Memory	• Various mnemonic techniques • Visual imagery mnemonics
• Attention • Memory • Executive functioning	• Memory notebook • External cuing
• Executive functioning • Social pragmatics	• Social communication skills training groups
• Attention • Memory • Executive functioning • Social pragmatics	• Problem solving training • Error management training • Emotional regulation training • Integrated use of individual and group interventions

Available at: *http://www.dcoe.health.mil/ForHealthPros/Resources.aspx*

DRIVING FOLLOWING TBI

DRIVING FOLLOWING TBI CONFERENCE (2009): SUMMARY OF CLINICAL RECOMMENDATIONS

This fact sheet summarizes the clinical recommendations contained in the Driving Following Traumatic Brain Injury: Summary of Clinical Recommendations report that is a result of the DCoE Driving Evaluations After TBI Conference.

- **Goal: To ensure that those who have sufficiently recovered from all severities of TBI have the opportunity to safely drive government and privately owned vehicles in accordance with federal and state guidelines**
- Safe operation of a motor vehicle is a complex task requiring interaction of operational, cognitive and higher executive functions and perceptual abilities
- A TBI can disrupt the complex interplay of functions
- Individuals with all severities of TBI may be at risk for developing symptoms that affect fitness to drive
- A driving evaluation is a two-step process—Step One: Driving Screening and Step Two: Driving Assessment
- A driving screening should be considered for every individual with a TBI
- A driving screening may be performed by any qualified clinician who has experience and knowledge to evaluate those domains listed on the next page in Step One: Driving Screening
- A comprehensive driving assessment is usually reserved for patients whose driving screening results raise concerns or based on clinical judgment, is warranted
- A comprehensive driving assessment is performed by clinicians with driver rehabilitation training and education and TBI experience

Available at: *http://www.dcoe.health.mil/ForHealthPros/Resources.aspx*

Mild TBI Symptoms that may affect Driving (not all-inclusive)	Moderate and Severe TBI Symptoms that may affect Driving (not all-inclusive)
• Attention/concentration difficulties • Memory difficulties • Irritability • Challenges with executive functioning • Reasoning and problem solving – Organizing, planning and self-monitoring – Emotional regulation	• Mild TBI symptoms in addition to – Visual impairment – Paresis – Plegia – Post-traumatic seizures

Step One: Driving Screening

Performed by any clinician with experience and knowledge to evaluate the following areas:

- Visual acuity
- Visual fields
- Visual perception
- Visual processing
- Visuospatial skills
- Selective and divided attention
- Executive skills
- Fatigue
- Pain
- Coordination
- Motor and sensory function

A comprehensive driving assessment may be considered for those individuals whose driving screening results raise concerns or is warranted based on clinical judgment.

Step Two: Comprehensive Driving Assessment

Performed by clinician with driver rehabilitation training and education and TBI experience, oftentimes, referred to as a driver rehabilitation specialist

- Medical and driving history
  - Frequency of driving
  - Usual location of driving
  - Driving history pre- and post-injury
  - Self-reported violations/crashes
  - Verification of valid driver's license
- Vision
  - Visual fields
  - Visual acuity
  - Contrast sensitivity
  - Depth perception
- Motor
  - Complex reaction time
  - Musculoskeletal screen
- Cognitive
  - Orientation
  - Visual perception
  - Constructional ability
  - Memory
  - Calculation skills
  - Reasoning and judgment
  - Visual attention
  - Visual scanning/search
  - Processing speed
  - Mental flexibility
  - Executive functioning
  - Directed attention
  - Sign recognition/road knowledge
- Performance
  - On the road
  - Simulation (if available)

What is a driver rehabilitation specialist?

A driver rehabilitation specialist is one who plans, develops, coordinates and implements driving services for individuals with disabilities. Driver rehabilitation specialists are often occupational therapists, physical therapists, kinesiotherapists, psychologists and driver education specialists who undergo additional training in driver rehabilitation. While many driver rehabilitation specialists may hold a specific certification or are in the process of obtaining the necessary education and experience, certification is not required to practice driver rehabilitation.

Where are driver rehabilitation specialists located?

Several military treatment facilities, hospitals and clinics throughout the VA and DoD have driver rehabilitation specialists on staff and may offer driver rehabilitation services. To determine if your facility offers these services or if your patient needs a referral outside of your facility, contact your rehabilitation services department.

Available at: *http://www.dcoe.health.mil/ForHealthPros/Resources.aspx*

PATIENT EDUCATION

Provision of TBI education early after diagnosis of mild TBI has been shown to decrease symptom prevalence (Ponsford, 2002). Patient education focused around the natural history of mild TBI recovery that provides recommendations to facilitate sleep hygiene, coping strategies, stress management and avoidance of excessive alcohol and drug use would be most useful.

— Updated DoD mTBI Clinical Guidance (2008)

Ponsford J, Willmott C, Rothwell A, et al. Impact of early intervention on outcome following mild head injury in adults. J Neurol Neurosurg Psychiatry 2002: 73(3): 330–332

PATIENT EDUCATION: HEADACHE MANAGEMENT

Concussion/Mild Traumatic Brain Injury Rehabilitation: Headache and Neck Pain

Why Does it Hurt?

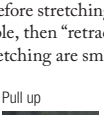
After a blast exposure, jump injury, car accident or other way that you might get a head injury, your neck may have experienced some trauma as well. Some people recover quickly from this type of injury, while others continue to have pain or stiffness in their necks related to poor posture. This neck pain can become head pain.

1. **Ice/Heat.** Ice your neck and head at least two to three times a day. Leave it there as you relax for about 20 minutes (or until the pack is no longer cold). Heat is good for relaxing muscles. You can use a warm gel pack. A 10–20 minute shower works just as well. Most respond to ice better than heat. Try both to see which one works best for you. When using heat or ice with neck stretches (below), use heat to relax muscles before stretching, then use ice after stretching to calm the muscles.
2. **Neck Stretches.** Before stretching in any direction, pull up your spine as straight as possible, then "retract" your chin towards your neck. The muscles you are stretching are small and delicate: start low, and go slow.

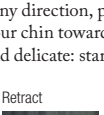
Keep your head level (not bending forward or back), do not tug or shove neck, and gently press on your chin for a deeper stretch.

Directions: Start by holding for only about five to 10 seconds, then more each day.

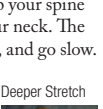
Pull up



Retract

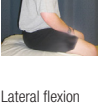


Deeper Stretch

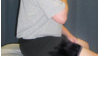


Flexion (chin to chest)

Lateral flexion (Ear to shoulder)



Rotation (Turn)



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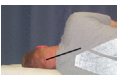
3. **Sleep Posture.** Consider how you sleep: on your stomach, back, side? Now take away the pillow, bring your arms to your sides, and sit up. How does your neck position look? Is it twisted and strained? Does is look or feel like a good position to keep your neck for six to eight hours every night? And, keep in mind, flipping to the other side doesn't make it "even!"

Directions: First, lying on your side is where to start. Then, consider your pillow. Neutral is the key.

Too Fluffy

Too Flat



Just Right

Next, as you lie on your side on your neutral pillow, pull your entire body completely straight. Once your neck is straight, rest your arms, bend your knees, relax your body to a comfortable position. RECHECK your neck position. Most people tend to curl up once they relax. If you have tucked your chin, pull your neck back up. This might feel awkward to start, but will become part of your bedtime routine and natural after about one to two weeks. Here's how it looks.

4. **Massage.** Massages can be relaxing. Ask for a therapeutic massage. Explain that you get headaches from neck tension. Relax and enjoy.

5. **Medication.** Be sure to tell your health care provider about all of the medications and supplements you are taking. Consult with a health care provider prior to using any OTC medications. Be advised that OTC medications may make your headaches worse. If you are prescribed headache and/or neck pain medication, take it only as directed and be aware that it may take two to four weeks to show improvement.

What Next?

If these conservative approaches are not effective after two to four weeks of consistent use, talk to your health care provider.

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PATIENT EDUCATION: DIZZINESS

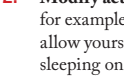
Concussion/Mild Traumatic Brain Injury Rehabilitation: Head Injury and Dizziness

Why Am I Dizzy?

Dizziness is one of the symptoms that you may experience after a head injury. Often this is related to a problem with the inner ear, which is where balance is controlled. The dizziness may also be related to other problems with the inner ear or problems with your neck. It is common to also experience ringing/buzzing in your ears, ear pain, hearing loss, neck pain/stiffness or headaches.

What Can I Do?

1. **Neck stretches.** *See previous section on "Headache and Neck Pain."*
2. **Modify activities.** If your dizziness is brought on by a change in position for example, sitting to standing, bending forward, etc., move slowly and allow yourself a minute in the new position before moving again. Avoid sleeping on the "bad" side.

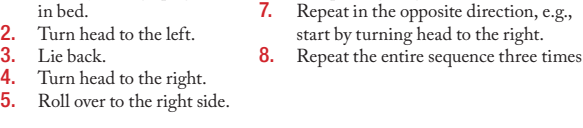


Change sleep position. If you are dizzy getting out of bed in the morning, consider sleeping in a semi-recumbent position, as shown in the picture.

At Home Vestibular Rehabilitation Exercises

Hold each of these positions for 30 seconds:

1. Start by sitting upright in bed.
2. Turn head to the left.
3. Lie back.
4. Turn head to the right.
5. Roll over to the right side.
6. Sit up straight again.
7. Repeat in the opposite direction, e.g., start by turning head to the right.
8. Repeat the entire sequence three times.



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What to Expect?

The vestibular rehabilitation exercises will likely bring on your typical dizziness symptoms, but over time these exercises help train your body to overcome the dizziness. It is best to do these exercises on your bed right before bedtime. If your symptoms get worse after these exercises and do not return to baseline within one to two hours, consult your health care provider.

What Next?

If these exercises do not help your dizziness in about two weeks, talk to your health care provider, who will evaluate your dizziness and set up a treatment plan.

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PATIENT EDUCATION: HEALTHY SLEEP

Concussion/Mild Traumatic Brain Injury Rehabilitation: Healthy Sleep

Getting a good night's sleep has to do with many factors. The following are helpful hints for good sleep hygiene and treatment of insomnia.

1. No caffeine-containing foods or drinks three hours prior to bedtime
2. No heavy exercise three hours prior to bedtime
3. No alcohol, nicotine or heavy meals within three hours of bedtime
4. Avoid bright light exposure near bedtime
5. Keep regular bedtime and wake-up hours, even on the weekend
6. Foster a quiet, pleasant sleep environment—a cool room and soft lighting
7. Have a relaxing bedtime routine—warm soak in the tub or warm shower, relaxing thoughts, meditation, progressive muscle relaxation exercises or Yoga
8. Stop work or TV viewing of disturbing or stimulating television shows at least one hour before bedtime
9. Use of the bed is for sleep and sex, which means no watching TV, work or reading
10. Go to bed only when sleepy
11. Go to another room if sleep does not come within 20–30 minutes
12. Get up at the same time each morning
13. Do NOT take naps
14. If you have been prescribed sleep medications, take them as instructed and at the same time every night
15. Consult with a health care provider before taking any OTC medications or supplements

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PATIENT EDUCATION: MOOD CHANGES

Concussion/Mild Traumatic Brain Injury Rehabilitation: Mood Changes

Having trouble concentrating?
Easily irritated or on the edge?
Feeling overwhelmed, anxious, sad or depressed?

- **Understand that this is OK to have these feelings.** There are things you can do to help manage these feelings; take deep breaths and know that the feeling will pass; do not focus on your worries or troubles; do something you enjoy
- **This is normal and very common after a concussion/mild traumatic brain injury.** Fortunately, these feelings get better with time
- **Do not call yourself bad names or put yourself down.** You are not your concussion/mild traumatic brain injury; life will get better; stay positive
- **Talk to someone you love or trust about these feelings.** Many people have felt the same way you have at some point in time; don't be afraid to express yourself; your health care provider can also help, so be sure to share your feelings with him or her
- **If you have thoughts or feelings of hurting yourself or others, seek emergency care.** You can contact the Veterans Administration Suicide Prevention Hotline: 800-273-TALK (8255); this number is established for both veterans and active duty personnel
- **Symptoms associated with TBI are similar to psychological stress.** If these mood changes are causing problems at work or home, seek help

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PATIENT EDUCATION: IMPROVING MEMORY

Concussion/Mild Traumatic Brain Injury Rehabilitation: 10 Ways to Improve Your Memory

1. **Get seven to eight hours of sleep.** Keep a quiet, cool environment; go to sleep at the same time nightly; no napping; avoid high energy video games, movies and television prior to bedtime; avoid exercise before bedtime
2. **Write it down.** Keep a notebook and pen with you and write things down, it will keep you on track and help remind you of important things, like taking your medication; day planners or small calendars also help
3. **Avoid alcohol, tobacco, excessive caffeine and energy drinks.** These increase sleep problems, anxiety, blood pressure levels and overall stress
4. **Prioritize.** Make a list of things that need to be taken care of, place them in order of importance and check them off when completed
5. **Get a routine.** Put your keys in the same spot every day; park in the same areas; being consistent helps memory and lowers anxiety
6. **Keep mentally active.** Work crossword puzzles; read a book; play a board or card game like solitaire or concentration; try to learn something new every day
7. **Decrease your stress level.** Don't take on too much at one time; keep stress to a minimum; stress hormones can damage your brain and add to depression and anxiety; learn to say "no" when feeling overwhelmed; it's also OK to ask for help when you need it; make time for you
8. **Stay physically active.** Take the dog for a walk; take the stairs instead of the elevator; small spurts of exercise add up; the higher blood flow to your brain helps promote cell growth; exercising is also a mood booster and helps with mental clarity
9. **Feed your brain.** Eat high quality foods at regular intervals; fish, colorful fruits and veggies, milk, eggs, whole grain breads, nuts and beans all help to keep the brain and body healthy
10. **Avoid further brain injury.** Consider swimming, walking or running instead of playing football or boxing; wear a helmet when riding your bike or motorcycle; drive safely; stay sober

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PATIENT EDUCATION: NON-ACUTE CONCUSSION/MILD TBI

What is a Concussion?

- Concussion is an injury from a hit, blow, or jolt to the head that briefly knocks you out (loss of consciousness) or makes you confused or "see stars" (change in consciousness)
- It can result in headaches, irritability, fatigue, balance difficulties, sleep disturbance, dizziness, ringing in the ears, blurred vision, concentration or memory difficulties and other problems

Have I Had a Concussion?

- Your assessment indicates that you may have had a concussion/mild TBI
- It is important to understand that "mTBI"—mild Traumatic Brain Injury—is just another way of saying "concussion"
- We refer to your injury as a concussion because we want to make sure you realize that it's different from the other more severe "traumatic brain injuries" (TBIs)

How Long Does it Last?

- Almost everyone recovers from concussion within hours to days
- Sometimes service members are concerned that concussions sustained during deployment will lead to lasting effects after return home, but in fact, concussions usually heal quickly
- Occasionally, symptoms may persist longer than expected
- The time it takes to heal depends on the individual, the nature of the injury, the number of concussions and other conditions that may exist

What Else is Important?

- Persistent symptoms post-deployment may result from physical injuries or other significant events or conditions, such as sleep deprivation and operational stress reactions
- Conditions such as post-traumatic stress (PTS), depression, anxiety and alcohol use can make it more difficult to fully recover
- Talk to your provider about significant events you experienced in theater and any symptoms you have
- Communicate accurately detailed information about all injury events—the sooner you do this the better

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What Will Help Your Recovery?

- Talk to your provider about the problems you're experiencing
- Take only medications prescribed for you, take them as directed and report any side effects
- Abstain from alcohol and drug use
- Limit your use of caffeine and "energy-enhancing" products
- Avoid contact sports that can lead to another concussion
- Avoid aggressive driving that can lead to more severe traumatic brain injuries
- Get plenty of sleep every day—at least seven to eight hours

Recovery

- Full recovery is expected even if you've had more than one concussion during deployment; however, healing may take a little more time with each additional concussion
- It's important to know that treatment is available for your post-deployment health problems, including those related to concussion
- Most health problems resulting from concussion or deployment can be addressed by a primary care provider who is supported by a team of specialists
- Speak with your provider about each of your health concerns
- Understand that recovering from a concussion may take longer if you have other medical conditions, such as depression, PTS, sleep problems or are using alcohol or drugs

The most important things *you* can do:

- Relax and give yourself time to heal
- Get plenty of sleep and rest
- Be honest with your provider
- Avoid further head injury
- Expect a full recovery

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This patient education sheet was developed by subject matter experts from the DoD and VA (Version 2: 4 May 2009) and is available for download at: *http://www.dvbic.org*

PATIENT EDUCATION: ACUTE CONCUSSION/ MILD TBI

What Happened to Me?

Your assessment indicates that you have had a concussion, which is also called a "mild traumatic brain injury" (mTBI)

What is a Concussion?

- A concussion is a head injury from a hit, blow, or jolt to the head that briefly knocks you out (loss of consciousness) or makes you feel confused or "see stars" (alteration or change in consciousness)
- Immediately or soon after the concussion, you may have disorientation, headaches, dizziness, balance difficulties, ringing in the ears, blurred vision, nausea, vomiting, irritability, temporary gaps in your memory, sleep problems or attention and concentration problems

How Long Does it Last?

- Most people recover from concussion
- Symptoms usually begin to improve within hours and typically resolve completely within days to weeks
- Even if you've had more than one concussion, full recovery is expected; however, every time you sustain an additional concussion your healing might take longer

Recovery

- Recovery is different for each person and depends on the nature of the injury
- The most important thing you can do is to allow time for your brain to heal
- Be honest about your symptoms and let your medical provider decide when it's time to return to duty (RTD)

Why Does a Concussion Affect Return to Duty?

- Often after a concussion, service members think they are OK, yet they've actually had an injury that needs attention
- Symptoms after concussion reduce your effectiveness, which could impair your performance and endanger your mission

Defense and Veterans Brain Injury Center (DVBIC)
This patient education sheet was developed by subject matter experts from the DoD and VA (Version 4.0: 27 May 2010) and is available for download at: *http://www.dvbic.org*

- These temporary impairments resolve fastest when your brain gets rest (similar to resting a sprained ankle)
- If you get another concussion before healing from the first one, you are at greater risk for a more serious injury

What Are Your Medical Instructions Now That You Have Been Diagnosed with a Concussion?

- You have already reported it and been checked out
  - Be honest with your providers
- Rest
  - Avoid exerting yourself physically (working, heavy lifting, exercising, etc.)
  - Avoid mental exertion (writing reports, thinking, activities requiring you to pay attention, etc.)
- Return to Duty
  - Expect to recover fully and RTD
  - Your provider will continue to evaluate you and will determine when it's safe for you to RTD

Warning Signs

If you begin to experience any of the following, seek *immediate* medical attention:

- Worsening headache
- Worsening balance
- Double vision or other vision changes
- Decreasing level of alertness
- Increased disorientation
- Repeated vomiting
- Seizures
- Unusual behavior
- Amnesia/Memory problems

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Healing From a Concussion	
Things that Improve Healing	**Things that Impair Healing**
• Maximize downtime/rest during the day • Get plenty of sleep at night • Protect yourself from another concussion: avoid contact sports, combatives, etc. • Let others know that you've had a concussion so they can watch out for you • Return immediately to your medical provider if you're feeling worse or experiencing any of the warning signs (see previous page)	• Another concussion before healing from the first one • Alcohol and drug use • Inadequate sleep (made worse by caffeine or "energy-enhancing" products) • Aspirin, ibuprofen and other OTC pain medications unless instructed by your doctor • Sleeping aids and sedatives unless instructed by your doctor

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CLINICAL TOOLS AND RESOURCES

DIZZINESS HANDICAP INVENTORY (DHI)

THE DIZZINESS HANDICAP INVENTORY (DHI)	Yes	Sometimes	No
P1. Does looking up increase your problem?			
E2. Because of your problem, do you feel frustrated?			
F3. Because of your problem, do you restrict your travel for business or recreation?			
P4. Does walking down the aisle of a supermarket increase your problems?			
F5. Because of your problem, do you have difficulty getting into or out of bed?			
F6. Does your problem significantly restrict your participation in social activities, such as going out to dinner, going to the movies, dancing or going to parties?			
F7. Because of your problem, do you have difficulty reading?			
P8. Does performing more ambitious activities such as sports, dancing and household chores (sweeping or putting dishes away) increase your problems?			
E9. Because of your problem, are you afraid to leave your home without having someone accompany you?			
E10. Because of your problem, have you been embarrassed in front of others?			
P11. Do quick movements of your head increase your problem?			
F12. Because of your problem, do you avoid heights?			
P13. Does turning over in bed increase your problem?			
F14. Because of your problem, is it difficult for you to do strenuous homework or yard work?			
E15. Because of your problem, are you afraid people may think you are intoxicated?			
F16. Because of your problem, is it difficult for you to go for a walk by yourself?			
P17. Does walking down a sidewalk increase your problem?			
E18. Because of your problem, is it difficult for you to concentrate?			

THE DIZZINESS HANDICAP INVENTORY (DHI), cont.	Yes	Sometimes	No
F19. Because of your problem, is it difficult for you to walk around your house in the dark?			
E20. Because of your problem, are you afraid to stay home alone?			
E21. Because of your problem, do you feel handicapped?			
E22. Has the problem placed stress on your relationships with members of your family or friends?			
E23. Because of your problem, are you depressed?			
F24. Does your problem interfere with your job or household responsibilities?			
P25. Does bending over increase your problem?			

Used with permission: Jacobson GP, Newman CW: The development of the Dizziness Handicap Inventory. *Arch Otolaryngol Head Neck Surg* 1990;116: 424–427

DHI Scoring Instructions

The patient is asked to answer each question as it pertains to dizziness or unsteadiness problems, specifically considering their condition during the last month. Questions are designed to incorporate functional (F), physical (P), and emotional (E) impacts on disability.

To each item, the following scores can be assigned:
No = 0 Sometimes = 2 Yes = 4

Scores greater than 10 points should be referred to balance specialists for further evaluation.
16–34 Points (mild handicap)
36–52 Points (moderate handicap)
54+ Points (severe handicap)

EPWORTH SLEEPINESS SCALE (ESS)

Epworth Sleepiness Scale

How likely are you to doze off or fall asleep in the following situations, in contrast to feeling just tired? This refers to your usual way of life in recent times. Even if you haven't done some of these things recently try to work out how they would have affected you.

Use the following scale to choose the **most appropriate number** for each situation:

0 = Would never doze	**2 = Moderate chance of dozing**
1 = Slight chance of dozing	**3 = High chance of dozing**

It is important that you answer each question as best you can.

SITUATION	CHANCE OF DOZING
Sitting and reading	
Watching TV	
Sitting, inactive in a public place, e.g., a theatre or a meeting	
As a passenger in a car for an hour without a break	
Lying down to rest in the afternoon when circumstances permit	
Sitting and talking to someone	
Sitting quietly after a lunch without alcohol	
In a car, while stopped for a few minutes in the traffic	
	TOTAL:

Scoring

The total ESS score is the sum of eight item-scores and can range between 0 and 24. The higher the score, the higher the person's level of daytime sleepiness. Most people can answer the ESS, without assistance, in two or three minutes. The total ESS score provides an estimate of a general characteristic of each person – their average level of sleepiness in daily life. This can be influenced by many factors, and the ESS does not distinguish which factor(s) have caused any particular level of daytime sleepiness. It is not a diagnostic tool in itself, but is a very useful tool for measuring one important aspect of a person's sleep-wake health status.

Used with permission: Johns MW. A New Method for Measuring Daytime Sleepiness: The Epworth Sleepiness Scale. Sleep 1991; 14(6): 540–545.

GLASGOW COMA SCALE (GCS)

Eye Opening	Spontaneously	**4**
	To speech	**3**
	To pain	**2**
	Do not open	**1**

Best Verbal Response	Oriented	**5**
	Confused	**4**
	Inappropriate	**3**
	Unintelligible	**2**
	No verbalization	**1**

Best Motor Response	Obeys commands	**6**
	Localizes to pain	**5**
	Withdraws from pain	**4**
	Abnormal flexion (decorticate)	**3**
	Extension (decorticate)	**2**
	No motor response	**1**

Scoring Range: **3–15**

MULTIDIMENSIONAL ASSESSMENT OF FATIGUE (MAF) SCALE

Instructions: These questions are about fatigue and the effect of fatigue on your activities.

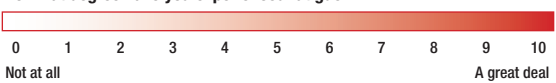
For each of the following questions, circle the number that most closely indicates how you have been feeling during the past week.

For example, suppose you really like to sleep late in the mornings. You would probably circle the number closer to the "a great deal" end of the line. This is where I put it:

Example: To what degree do you usually like to sleep late in the mornings?

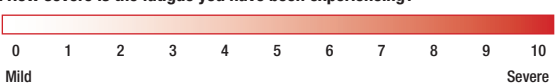
Now please complete the following items based on **the past week.**

1. To what degree have you experienced fatigue?



If no fatigue, stop here.

2. How severe is the fatigue you have been experiencing?



3. To what degree has fatigue caused you distress?

Circle the number that most closely indicates to what degree fatigue has interfered with your ability to do the following activities in the past week. For activities you don't do, for reasons other than fatigue, e.g., you don't work because you are retired, check the box.

In the past week, to what degree has fatigue interfered with your ability to:

Note: Check box to the left of each number if you don't do activity

☐ **4. Do household chores**

0 1 2 3 4 5 6 7 8 9 10

Not at all — A great deal

☐ **5. Cook**

0 1 2 3 4 5 6 7 8 9 10

Not at all — A great deal

☐ **6. Bathe or wash**

0 1 2 3 4 5 6 7 8 9 10

Not at all — A great deal

☐ **7. Dress**

0 1 2 3 4 5 6 7 8 9 10

Not at all — A great deal

☐ **8. Work**

0 1 2 3 4 5 6 7 8 9 10

Not at all — A great deal

☐ **9. Visit or socialize with friends or family**

0 1 2 3 4 5 6 7 8 9 10

Not at all — A great deal

☐ **10. Engage in sexual activity**

0 1 2 3 4 5 6 7 8 9 10

Not at all — A great deal

☐ **11. Engage in leisure and recreational activities**

☐ **12. Shop and do errands**

☐ **13. Walk**

☐ **14. Exercise, other than walking**

15. Over the past week, how often have you been fatigued?

16. To what degree has your fatigue changed during the past week?

Scoring

To calculate the Global Fatigue Index (GFI): Convert item #15 to a 0–10 scale by multiplying each score by 2.5 and then sum items #1, 2, 3, average #4–14, and newly scored item #15. Scores range from 1 (no fatigue) to 50 (severe fatigue). Do not assign a score to items #4–14 if respondent indicated they "do not do any activity for reasons other than fatigue. If respondents select no fatigue on item #1, assign a zero to items #2–16. Item #16 is not included in the GFI.

NEUROBEHAVIORAL SYMPTOM INVENTORY (NSI)

Name:_____

Medical Record #:_____

Date:_____

Please rate the following symptoms with regard to how much they have disturbed you in the last two weeks. The purpose of this inventory is to track symptoms over time. Please do not attempt to score.

0 = None	Rarely if ever present, not a problem at all
1 = Mild	Occasionally present, but it does not disrupt my activities; I can usually continue what I'm doing; doesn't really concern me
2 = Moderate	Often present, occasionally disrupts my activities; I can usually continue what I'm doing with some effort; I feel somewhat concerned
3 = Severe	Frequently present and disrupts activities; I can only do things that are fairly simple or take little effort; I feel I need help
4 = Very Severe	Almost always present and I have been unable to perform at work, school or home due to this problem; I probably cannot function without help

SYMPTOMS

Feeling Dizzy	0	1	2	3	4
Loss of balance	0	1	2	3	4
Poor coordination, clumsy	0	1	2	3	4
Headaches	0	1	2	3	4
Nausea	0	1	2	3	4
Vision problems, blurring, trouble seeing	0	1	2	3	4
Sensitivity to light	0	1	2	3	4
Hearing difficulty	0	1	2	3	4

SYMPTOMS

Sensitivity to noise	0	1	2	3	4
Numbness or tingling on parts of my body	0	1	2	3	4
Change in taste and/or smell	0	1	2	3	4
Loss of appetite or increased appetite	0	1	2	3	4
Poor concentration, can't pay attention, easily distracted	0	1	2	3	4
Forgetfulness, can't remember things	0	1	2	3	4
Difficulty making decisions	0	1	2	3	4
Slowed thinking, difficulty getting organized, can't finish things	0	1	2	3	4
Fatigue, loss of energy, getting tired easily	0	1	2	3	4
Difficulty falling or staying asleep	0	1	2	3	4
Feeling anxious or tense	0	1	2	3	4
Feeling depressed or sad	0	1	2	3	4
Irritability, easily annoyed	0	1	2	3	4
Poor frustration tolerance, feeling easily overwhelmed by things	0	1	2	3	4

Used with permission: Cicerone, K. D. & Kalmar, K. (1995) Persistent post-concussive syndrome: Structure of subjective complaints after mild traumatic brain injury. Journal of Head Trauma Rehabilitation. 10(3): 1–17.

PATIENT HEALTH QUESTIONNAIRE

Patient Health Questionnaire (PHQ-9)

Name:_____ Date: _____

Over the last two weeks, how often have you been bothered by any of the following problems? (use "✓" to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself in some way	0	1	2	3
add columns:		+	+	

(Healthcare professional: For interpretation of Total, please refer to accompanying scoring card.)

TOTAL:

10. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home or get along with other people?

- **Not difficult at all** _____
- **Somewhat difficult** _____
- **Very difficult** _____
- **Extremely difficult** _____

PHQ-9 Quick Depression Assessment

For initial diagnosis:

1. Patient completes PHQ-9 Quick Depression Assessment on accompanying tear-off pad
2. If there are at least four ✓s in the gray highlighted section (including Questions #1 and #2), consider a depressive disorder; add score to determine severity
3. **Consider Major Depressive Disorder**
   - ❑ if there are at least five ✓s in the gray highlighted section (one of which corresponds to Questions #1 or #2)

   Consider Other Depressive Disorder
   - ❑ if there are two to four ✓s in the gray highlighted section (one of which corresponds to Question #1 or #2)

Note: Since the questionnaire relies on patient self-report, all responses should be verified by the clinician and a definitive diagnosis made on clinical grounds, taking into account how well the patient understood the questionnaire as well as other relevant information from the patient. Diagnoses of Major Depressive Disorder or Other Depressive Disorder also require impairment of social, occupational or other important areas of functioning (Question #10) and ruling out normal bereavement, a history of a Manic Episode (Bipolar Disorder), and a physical disorder, medication or other drug as the biological cause of the depressive symptoms.

To monitor severity over time for newly diagnosed patients or patients in current treatment for depression:

1. Patients may complete questionnaires at baseline and at regular intervals, e.g., every two weeks, at home and bring them in at their next appointment for scoring or they may complete the questionnaire during each scheduled appointment
2. Add up three ✓s by column
   For every three: Several days = 1, More than half the days = 2, Nearly every day = 3
3. Add together column scores to get a TOTAL score
4. Refer to the accompanying PHQ-9 Scoring Card to interpret the TOTAL score
5. Results may be included in patients' files to assist you in setting up a treatment goal, determining degree of response as well as guiding treatment intervention

PHQ-9 SCORING CARD FOR SEVERITY DETERMINATION *(for healthcare professional use only)*	**Total Score**	**Depression Severity**
SCORING— **ADD UP ALL CHECKED BOXES ON PHQ-9** **For every ✓:** Not at all = 0; Several days = 1; More than half the days = 2; Nearly every day = 3	0–4	None
	5–9	Mild depression
	10–14	Moderate depression
	15–19	Moderately severe depression
	20–27	Severe depression

Reference: Public domain available at *http://www.phqscreeners.com*

PTSD CHECKLIST

PTSD Checklist – Military Version (PCL-M)

Instruction to patient: Below is a list of problems and complaints that veterans sometimes have in response to stressful military experiences. Please read each one carefully, fill in the circle to indicate how much you have been bothered by that problem in the last month.

1 = Not at all	2 = A little bit	3 = Moderately	4 = Quite a bit	5 = Extremely

RESPONSE

1.	Repeated, disturbing memories, thoughts or images of a stressful military experience?	1	2	3	4	5
2.	Repeated, disturbing dreams of a stressful military experience?	1	2	3	4	5
3.	Suddenly acting or feeling as if a stressful military experience were happening again (as if you were reliving it)?	1	2	3	4	5
4.	Feeling very upset when something reminded you of a stressful military experience?	1	2	3	4	5
5.	Having physical reactions, e.g., heart pounding, trouble breathing or sweating, when something reminded you of a stressful military experience?	1	2	3	4	5
6.	Avoid thinking about or talking about a stressful military experience or avoid having feelings related to it?	1	2	3	4	5
7.	Avoid activities or situations because they remind you of a stressful military experience?	1	2	3	4	5
8.	Trouble remembering important parts of a stressful military experience?	1	2	3	4	5
9.	Loss of interest in things that you used to enjoy?	1	2	3	4	5
10.	Feeling distant or cut off from other people?	1	2	3	4	5
11.	Feeling emotionally numb or being unable to have loving feelings for those close to you?	1	2	3	4	5
12.	Feeling as if your future will somehow be cut short?	1	2	3	4	5
13.	Trouble falling or staying asleep?	1	2	3	4	5
14.	Feeling irritable or having angry outbursts?	1	2	3	4	5
15.	Having difficulty concentrating?	1	2	3	4	5
16.	Being “super alert” or watchful on guard?	1	2	3	4	5
17.	Feeling jumpy or easily startled?	1	2	3	4	5

Scoring

The PCL is a self-report measure that takes approximately five to ten minutes to complete. Interpretation of the PCL should be completed by a clinician. A total symptom severity score (range = 17–85) can be obtained by summing the scores from each of the 17 items. A diagnosis can be made by: 1) Determining whether an individual meets DSM-IV symptom criteria, i.e., at least one B item (questions 1–5), 3 C items (questions 6–12), and at least 2 D items (questions 13–17). Symptoms rated as "Moderately" or above (responses 3 through 5) are counted as present. 2) Determining whether the total severity score exceeds a given cutpoint. 3) Combining methods (1) and (2) to ensure that an individual has sufficient severity as well as the necessary pattern of symptoms required by the DSM.

Reference: PCL-M provided by the National Center for PTSD

OTHER TOOLS

Links to Other Tools (not reproduced in this guide)

Drug Use Questionnaire (DAST-20)
http://www.ensuringsolutions.org/usr_doc/DAST.pdf

Fatigue Assessment Instrument (FAI)
http://www.sciencedirect.com/science?_ob=MImg&_imagekey=B6T8V-45WYX0N-15N-1&_cdi=5096&_user=9086466&_pii=002239999390104N&_orig=search&_coverDate=10%2F31%2F1993&_sk=999629992&view=c&wchp=dGLbVzb-zSkWA&md5=39e942ba512bd4a9cd81656f714b3c06&ie=/sdarticle.pdf

Fatigue Impact Scale (FIS)
http://www.mapi-trust.org/services/questionnairelicensing/cataloguequestionnaires/123-fis

Pittsburgh Sleep Quality Index (PSQI)
http://www.sleep.pitt.edu/content.asp?id=1484&subid=2316

Links to Other Tools (included on pages 71–83 of this guide)

Dizziness Handicap Inventory (DHI)
http://web.missouri.edu/~proste/tool/vest/Dizziness-Handicap-Inventory.pdf

Epworth Sleepiness Scale (ESS)
http://epworthsleepinessscale.com/1997-version-ess

Glasgow Coma Scale (GCS)
http://www.traumaticbraininjury.com/content/symptoms/glasgowcomascale.html

Multidimensional Assessment of Fatigue (MAF)
http://www.son.washington.edu/research/maf

Neurobehavioral Symptom Inventory (NSI)
http://centerforneurorehabservices.org/uploads/2454/NB.Sx.Inventory.online.pdf

Patient Health Questionnaire (PHQ-9) – Depression Assessment
http://www.phqscreeners.com

PTSD Checklist (PCL-M)
http://www.ptsd.va.gov/professional/pages/assessments/ptsd-checklist.asp

ADDITIONAL RESOURCES

TBI Information

Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE)
http://www.dcoe.health.mil

Defense and Veterans Brain Injury Center (DVBIC)
http://www.dvbic.org

Deployment Health Clinical Center (DHCC)
http://www.pdhealth.mil/TBI.asp

The Center of Excellence for Medical Multimedia
http://www.traumaticbraininjuryatoz.org

Brain Injury Association of America
http://www.biausa.org

Brainline (WETA)
http://www.brainline.org

Clinical Guidelines

The following are available for download at:
http://www.dcoe.health.mil/ForHealthPros/TBIInformation.aspx

- VA/DoD CPG for Management of Concussion/Mild TBI
- Fact Sheet Summarizing VA/DoD Evidence Based Clinical Practice Guideline for Management of Concussion/Mild Traumatic Brain Injury
- DoD Updated mild TBI Clinical Guidance (May 8, 2008)
- DCoE & DVBIC Cognitive Rehabilitation Consensus Conference Report
- Cognitive Rehabilitation Clinical Guidance Fact Sheet
- DoD ICD-9 CM Coding Guidance For Traumatic Brain Injury Fact Sheet
- Driving Following TBI – Clinical Recommendations
- Driving Following TBI – Summary

Patient Education

The following are available for download at:
http://www.dvbic.org

- Headache Management
- Dizziness
- Healthy Sleep
- Mood Changes
- Improving Memory
- Non-Acute Concussion/mild TBI
- Acute Concussion/mild TBI

DVBIC Regional Care Coordinator Program

- The DVBIC Regional Care Coordinator (RCC) Program is a network of professionals (nurses, social workers, counselors) specializing in TBI who provide regular follow-up to service members and veterans with TBI (all severities) in order to improve service delivery, ensure service members and veterans are connected with clinical and non-clinical services along the recovery continuum from injury to return to duty and/or reintegration into the community. Each DVBIC RCC is assigned to a specific geographical region of the country and is also tasked with maintaining knowledge of the TBI treatment and support assets of the region (military, veteran and civilian)
- RCCs:
  - Serve as points of contact to assess TBI resources in communities where the individual resides
  - Facilitate access to those services
  - Collaborate with the DoD and VA case management programs to evaluate the appropriateness and therapeutic value of individual short-term and long-term plans of care
- To locate the RCC in your area, please contact DVBIC at:
  - Commercial toll-free: 1-800-870-9244
  - DSN: 662-6345
  - Email: *info@dvbic.org*

To request additional copies of this pocket guide, please contact info@dvbic.org or contact 1-800-870-9244

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