

## **A. DOD/VA COMMON DEFINITION OF TBI**

DoD/VA Definition and Symptomatic Taxonomy Working Group and other joint consensus panels developed a definition of traumatic brain injury (TBI) for use in the Departments of Defense (DoD) and Veterans Affairs (VA).

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;
- Any loss of memory for events immediately before or after the injury;
- 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: the head being struck by an object, the head striking an object, the brain undergoing an acceleration/deceleration movement without direct external trauma to the head, a foreign body penetrating the brain, forces generated from events such as a blast or explosion, or other force yet to be defined.

Not all individuals exposed to an external force will sustain a traumatic brain injury. Traumatic brain injury varies in severity, traditionally described as mild, moderate and severe. These categories are based on measures of length of unconsciousness, post traumatic amnesia.

The trauma may cause structural damage or may produce more subtle damage that manifests by altered brain function, without structural damage that can be detected by traditional imaging studies such as MRI or CT scanning. In addition to traditional imaging studies, other imaging techniques such as fMRI, diffusion tensor imaging, PET scanning, as well as electrophysiological testing such as electroencephalography may be used to detect damage to or physiological alteration of brain function. In addition, altered brain function may be manifest by altered performance on neuropsychological or other standardized testing of function.

Acute injury severity is determined at the time of the injury, but this severity level, while having some prognostic value, does not necessarily reflect the patient's ultimate level of functioning. It is recognized that serial assessments of the patient's cognitive, emotional, behavioral and social functioning is required.

- The patient is classified as mild/moderate/severe if he or she meets any of the criteria below within a particular severity level. If a patient meets criteria in more than one category of severity, the higher severity level of severity is assigned.
- If it is not clinically possible to determine the brain injury level of severity of because of medical complications (e.g. medically induced coma), other severity markers are required to make a determination of the severity of the brain injury.

It is recognized that the symptoms associated with post traumatic stress disorder (PTSD) may overlap with symptoms of mild traumatic brain injury. Differential diagnosis of brain injury and PTSD is required for accurate diagnosis and treatment.

**SEVERITY OF BRAIN INJURY STRATIFICATION**

<b>Mild</b>	<b>Moderate</b>	<b>Severe</b>
Normal structural imaging	Normal or abnormal structural imaging	Normal or abnormal structural imaging
LOC = 0-30 min	LOC >30 min and < 24 hours	LOC > 24 hrs
AOC = a moment up to 24 hrs	AOC >24 hours. Severity based on other criteria	
PTA = 0-1 day	PTA >1 and <7 days	PTA > 7 days
GCS=13-15	GCS=9-12	GCS=3-8

AOC – Alteration of consciousness/mental state  
LOC – Loss of consciousness  
PTA – Post-traumatic amnesia  
GCS=Glasgow Coma Scale

**Note:** For purposes of injury stratification, the Glasgow Coma Scale is measured at or after 24 hours

This stratification does not apply to penetrating brain injuries where the dura mater is breached.

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The above criteria define the event of TBI. Sequelae of TBI may resolve quickly, within minutes to hours after the neurological event, or they may persist longer. Some sequelae of TBI may be permanent. Most signs and symptoms will manifest immediately following the event. However, other signs and symptoms may be delayed from days to months (e.g., subdural hematoma, seizures, hydrocephalus, spasticity, etc.). Signs and symptoms may occur alone or in varying combinations and may result in a functional impairment. These signs and symptoms are not better explained by pre-existing conditions or other medical, neurological, or psychological causes except in cases of an exacerbation of a pre-existing condition. These generally fall into one or more of the three following categories:

- Physical: headache, nausea, vomiting, dizziness, blurred vision, sleep disturbance, weakness, paresis/plegia, sensory loss, spasticity, aphasia, dysphagia, dysarthria, apraxia, balance disorders, disorders of coordination, seizure disorder.
- Cognitive: attention, concentration, memory, speed of processing, new learning, planning, reasoning, judgment, executive control, self-awareness, language, abstract thinking.
- Behavioral/emotional: depression, anxiety, agitation, irritability, impulsivity, aggression.

***Note:** The signs and symptoms listed above are typical of each category but are not an exhaustive list of all possible signs and symptoms.*

#### **OTHER DEFINITIONS**

There are several common definitions of mild TBI. More severe forms of TBI are defined by imaging, loss of consciousness, altered consciousness, and Glasgow Coma Score.

**National Institutes of Health:** Traumatic brain injury, also called acquired brain injury or simply head injury, occurs when a sudden trauma causes damage to the brain. TBI can result when the head suddenly and violently hits an object, or when an object pierces the skull and enters brain tissue. Symptoms of a TBI can be mild, moderate, or severe, depending on the extent of the damage to the brain. A person with a mild TBI may remain conscious or may experience a loss of consciousness for a few seconds or minutes. Other symptoms of mild TBI include headache, confusion, lightheadedness, dizziness, blurred vision or tired eyes, ringing in the ears, bad taste in the mouth, fatigue or lethargy, a change in sleep patterns, behavioral or mood changes, and trouble with memory, concentration, attention, or thinking. A person with a moderate or severe TBI may show these same symptoms, but may also have a headache that gets worse or does not go away, repeated vomiting or nausea, convulsions or seizures, an inability to awaken from sleep, dilation of one or both pupils of the eyes, slurred speech, weakness or numbness in the extremities, loss of coordination, and increased confusion, restlessness, or agitation.

**Centers for Disease Control and Prevention:** Traumatic brain injury (TBI) is caused by a blow or jolt to the head or a penetrating head injury that disrupts the normal function of the brain. Not all blows or jolts to the head result in a TBI. The severity of a TBI may range from “mild,” i.e., a brief change in mental status or consciousness to “severe,” i.e., an extended period of unconsciousness or amnesia after the injury.

- Headaches or neck pain that do not go away;
- Difficulty remembering, concentrating, or making decisions;
- Slowness in thinking, speaking, acting, or reading;

- Getting lost or easily confused;
- Feeling tired all of the time, having no energy or motivation;
- Mood changes (feeling sad or angry for no reason);
- Changes in sleep patterns (sleeping a lot more or having a hard time sleeping);
- Light-headedness, dizziness, or loss of balance;
- Urge to vomit (nausea);
- Increased sensitivity to lights, sounds, or distractions;
- Blurred vision or eyes that tire easily;
- Loss of sense of smell or taste; and
- Ringing in the ears.

CDC noted that there was no widely accepted, standard system to classify mild TBI. CDC proposed the following criteria:

Current symptoms reported consequent to mild TBI not present before injury or those made worse in severity or frequency by the mild TBI:

- Problems with memory
- Problems with concentration
- Problems with emotional control
- Headaches
- Fatigue
- Irritability
- Dizziness
- Blurred vision
- Seizures

Current limitations in functional status reported consequent to MTBI:

- Basic activities of daily living (e.g., personal care, ambulation, travel)
- Major activities (e.g., work, school, homemaking)
- Leisure and recreation
- Social integration
- Financial independence

**The American Congress of Rehabilitative Medicine (ACRM)** defined mild TBI as a traumatically-induced physiological disruption of brain function manifested by at least one of the following:

- Any period of loss of consciousness
- Any loss of memory for events immediately before or after the injury
- Any alteration in mental state at the time of the injury (e.g. feeling dazed, disoriented, or confused).
- Focal neurological deficit(s) which may or may not be transient; but where the severity of the injury does not exceed the following:
  - Loss of consciousness of approximately 30 minutes or less
  - After 30 minutes, an initial Glasgow Coma Scale of 13-15
  - Post-traumatic amnesia not greater than 24 hours

**Individuals with Disabilities Education Act (IDEA, 34 CFR 300.7)** defines TBI as “an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child’s educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition, language, perceptual, and motor abilities; psycho-social behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital or degenerative, or to brain injuries induced by birth trauma.”

Certain aspects of mild TBI are found in Chapter 5 (Mental Disorders). These include cognitive change (310.1), post-concussive syndrome (310.2) and mild memory disturbance (310.8).

There is no single unified definition of mild TBI. Studies have shown that DSM-IV is less inclusive than the ICD-10 criteria because of the cognitive symptoms. The CDC and ACRM definitions are more focused on physiologic brain function or neurological manifestations of TBI than DSM-IV or ICD-10.

**DISCUSSION OF BRAIN INJURY STRATIFICATION**

There is no standard classification of TBI. While classification systems typically differentiate TBI on the basis of loss of consciousness (LOC), altered consciousness (AOC), post-traumatic amnesia (PTA), or Glasgow Coma Scale (GCS), there is no consensus how these variables define grade of TBI (Table 1).

**Table 1. Classification of TBI Severity**

Grade	ACRM	VHI	VA/DoD
Mild	LOC ≤ 30 min; Any AOC GCS 13-15; PTA < 24 hours	LOC or AOC < 30 min; normal imaging; GCS=13-15 PTA < 24 hours	Normal imaging; LOC 0-30 min; AOC momentary up to 24 hours; PTA 0-1 day
Moderate		LOC ≤ 6 hours; abnormal imaging; GCS 9-12; PTA < 7 days	Normal or abnormal imaging; LOC > 30 min and ≤ 24 hours; AOC > 24 hours (severity based on other factors); PTA >1 and <7 days
Severe		LOC > 6 hours; abnormal imaging; GCS < 9; PTA > 7 days	Normal or abnormal imaging; LOC > 24 hours; AOC > 24 hours (severity based on other factors); PTA >7 days

Traumatic Brain Injury. Veterans Health Initiative, Employee Education System, Department of Veterans Affairs. DoD/VA Definition and Symptomatic Taxonomy Working Group Definition.

Mild TBI (mTBI) or concussion generally involves loss of consciousness last 30 minutes or less, post-traumatic amnesia less than 24 hours, and Glasgow Coma Scale of 13-15. Concussion can be graded according to loss of consciousness and amnesia (Table 2).

**Table 2. Classification of Mild TBI (Concussion)**

Grade	Cantu	Colorado	AAN
Grade 1	No LOC; PTA < 5 min	No LOC; confusion without amnesia	Transient confusion; no LOC; Concussive symptoms resolve < 15 min
Grade 2	LOC < 5 min; PTA > 30 min	No LOC; confusion with amnesia	Transient confusion; no LOC; Concussive symptoms last > 15 min
Grade 3	LOC > 5 min; PTA > 24 hours	Any LOC	Any LOC either brief (seconds) or prolonged (minutes)

Cantu RC. Cerebral concussion in sport. Management and prevention. *Sports Med* 1992; 14: 64-Report of the Quality Standards Subcommittee. Practice parameter: the management of concussion in sports (summary statement). *Neurology* 1997; 48: 581-5. Colorado=Workers Compensation Board, State of Colorado. Traumatic Brain Injury. Veterans Health Initiative, Employee Education System, Department of Veterans Affairs.

**ICD-9-CM CLASSIFICATION OF SEVERITY**

ICD-9-CM classifies TBI (concussion) as follows:

- 850.0 With no loss of consciousness  
Concussion with mental confusion or disorientation, without loss of consciousness
- 850.1 With brief loss of consciousness  
Loss of consciousness for less than one hour
- 850.11 With loss of consciousness of 30 minutes or less
- 850.12 With loss of consciousness from 31 to 59 minutes
- 850.2 With moderate loss of consciousness  
Loss of consciousness for 1-24 hours
- 850.3 With prolonged loss of consciousness and return to pre-existing conscious level  
Loss of consciousness for more than 24 hours with complete recovery
- 850.4 With prolonged loss of consciousness, without return to pre-existing conscious level
- 850.5 With loss of consciousness of unspecified duration
- 850.9 Concussion, unspecified

**V15.5 EXTENDERS (DoD)**

V15.5\_0 OTHER PERSONAL HISTORY PRESENTING HAZARDS TO HEALTH, OTHER

V15.5\_1 PERSONAL HISTORY OF TRAUMATIC BRAIN INJURY (TBI),GLOBAL WAR ON TERRORISM (GWOT) RELATED,UNKNOWN LEVEL OF SEVERITY

V15.5\_2 PERSONAL HISTORY OF TRAUMATIC BRAIN INJURY (TBI),GLOBAL WAR ON TERRORISM (GWOT) RELATED,HIGHEST LEVEL OF SEVERITY MILD (GLASGOW COMA SCALE 13-15),LOC<1HR,POST TRAUMA AMNESIA<24HR

V15.5\_3 PERSONAL HISTORY OF TRAUMATIC BRAIN INJURY (TBI),GLOBAL WAR ON TERRORISM (GWOT) RELATED,HIGHEST LEVEL OF SEVERITY MODERATE (GLASGOW COMA SCALE 9-12),LOC 1-24 HRS,POST TRAUMA AMNESIA 1-6 DAYS

V515.5\_4 PERSONAL HISTORY OF TRAUMATIC BRAIN INJURY (TBI),GLOBAL WAR ON TERRORISM (GWOT) RELATED,HIGHEST LEVEL OF SEVERITY SEVERE (GLASGOW COMA SCALE 3-8),LOC >24HRS,POST TRAUMA AMNESIA >6 DAYS

V15.5\_5 PERSONAL HISTORY OF TRAUMATIC BRAIN INJURY (TBI),GLOBAL WAR ON TERRORISM (GWOT) RELATED,PENETRATING INTRACRANIAL WOUND (NO LEVEL OF SEVERITY ASSIGNED)

V15.5\_6 PERSONAL HISTORY OF TRAUMATIC BRAIN INJURY (TBI), NOT GWOT RELATED, UNKNOWN LEVEL OF SEVERITY

V15.5\_7 PERSONAL HISTORY OF TRAUMATIC BRAIN INJURY (TBI),NOT RELATED TO GLOBAL WAR ON TERRORISM (GWOT),HIGHEST LEVEL OF SEVERITY MILD (GLASGOW COMA SCALE 13-15),LOC<1HR,POST TRAUMA AMNESIA<24HR

V15.5\_8 PERSONAL HISTORY OF TRAUMATIC BRAIN INJURY (TBI),NOT RELATED TO GLOBAL WAR ON TERRORISM (GWOT),HIGHEST LEVEL OF SEVERITY MODERATE (GLASGOW COMA SCALE 9-12),LOC 1-24 HRS,POST TRAUMA AMNESIA 1-6 DAYS

V15.5\_9 PERSONAL HISTORY OF TRAUMATIC BRAIN INJURY (TBI),NOT RELATED TO GLOBAL WAR ON TERRORISM (GWOT),HIGHEST LEVEL OF SEVERITY SEVERE (GLASGOW COMA SCALE 3-8),LOC >24HRS,POST TRAUMA AMNESIA >6 DAYS

V15.5\_A PERSONAL HISTORY OF TRAUMATIC BRAIN INJURY (TBI),NOT RELATED TO GLOBAL WAR ON TERRORISM (GWOT),PENETRATING INTRACRANIAL WOUND (NO LEVEL OF SEVERITY ASSIGNED)

V15.5\_B PERSONAL HISTORY OF TRAUMATIC BRAIN INJURY (TBI), UNKNOWN IF GWOT RELATED, UNKNOWN SEVERITY LEVEL

V15.5\_C PERSONAL HISTORY OF TRAUMATIC BRAIN INJURY (TBI),UNKNOWN IF RELATED TO GLOBAL WAR ON TERRORISM (GWOT),HIGHEST LEVEL OF SEVERITY MILD (GLASGOW COMA SCALE 13-15),LOC<1HR,POST TRAUMA AMNESIA<24HR

V15.5\_D PERSONAL HISTORY OF TRAUMATIC BRAIN INJURY (TBI),UNKNOWN IF RELATED TO GLOBAL WAR ON TERRORISM (GWOT),HIGHEST LEVEL OF SEVERITY MODERATE (GLASGOW COMA SCALE 9-12),LOC 1-24 HRS,POST TRAUMA AMNESIA 1-6 DAYS

V15.5\_E PERSONAL HISTORY OF TRAUMATIC BRAIN INJURY (TBI),UNKNOWN IF RELATED TO GLOBAL WAR ON TERRORISM (GWOT),HIGHEST LEVEL OF SEVERITY SEVERE (GLASGOW COMA SCALE 3-8),LOC >24HRS,POST TRAUMA AMNESIA >6 DAYS

V15.5\_F PERSONAL HISTORY OF TRAUMATIC BRAIN INJURY (TBI), UNKNOWN IF RELATED TO GLOBAL WAR ON TERRORISM (GWOT), PENETRATING INTRACRANIAL WOUND (NO LEVEL OF SEVERITY ASSIGNED)

**DIFFERENCES IN STRATIFICATION SCHEMES**

There are differences in stratification of severity in the DoD/VA Common TBI Definition, ICD-9-CM, and the V15.5 Extenders (Table 1).

Table 1—Stratification of Severity by Loss of Consciousness

<b>Classification</b>	<b>MILD</b>	<b>MODERATE</b>	<b>SEVERE</b>
<b>DoD/VA Common Definition</b>	0-30 min	>30 min and < 24 hrs	>24 hrs
<b>ICD-9-CM</b>	No LOC; brief <1 hr (30 min or less, 31 min to 59 min)	1 to 24 hrs	>24 hrs
<b>V15.5 Extenders</b>	< 1 hr	1 to 24 hrs	>24 hrs

The Common Definition classifies mild TBI as LOC 0 to 30 minutes which is consistent with the American Congress of Rehabilitative Medicine (ACRM) definition. ICD-9-CM and V15.5 Extenders use less than one hour, but ICD-9-CM further differentiates LOC into 30 minutes or less and 31 to 59 minutes. The Common Definition classifies moderate TBI as LOC greater than minutes and less than 24 hours. The other two classification schemes used 1 to 24 hours. All classifications agree on classification of severe TBI as LOC greater than 24 hours. None of the classifications stratify penetrating brain injury as is common practice.

**PROPOSAL #1: Revise Intracranial Injury Section**

**DISCUSSION:** Intracranial injuries are broadly classified into two groups: those associated with skull fracture (801-802, 803-804) and those not associated with skull fracture (850 series, 851-853 series, and 854 series). See Figure 1. Both categories are stratified by loss of consciousness (LOC). Severity of intracranial injuries associated with skull fracture is indicated by a fifth digit. Intracranial injuries without skull fracture are broadly classified into three groups: (1) concussion (850 series), (2) those associated with specific brain damage such as lacerations, contusions, and hemorrhages (851-853 series), and (3) other and unspecified intracranial injuries (854 series).

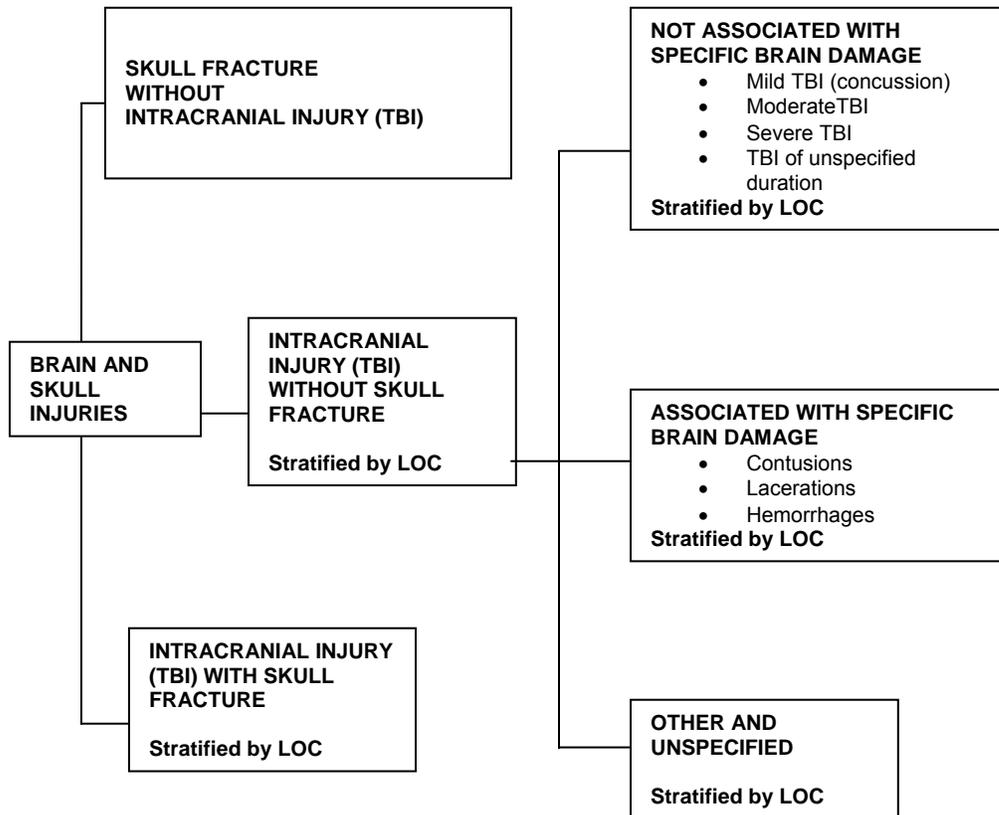
Concussion is currently defined and differentiated in the 850 series (concussion). More severe forms of TBI are differentiated from mild TBI (concussion) using codes 850.2 through 850.4. The term “concussion” is a colloquial term; TBI is the preferred term. In contemporary disease classification, mild TBI is synonymous with concussion, but more severe forms of TBI are inappropriately labeled as concussion. Moderate and severe TBI are neither classifiable as concussion nor post-concussive syndrome. Moreover, TBI is differentiated on other factors such as imaging, altered consciousness, and post-traumatic amnesia (see table). The DoD/VA Common TBI Definition classifies mild TBI as loss of consciousness 0-30 minutes and moderate TBI as loss of consciousness as greater than 30 minutes and less than 24 hours. This is consistent with the ACRM Definition.

Intracranial injuries due to specific brain damage include those associated with lacerations and contusions (851) and hemorrhages (852-853). Other and unspecified intracranial injuries are classified in the 854 section.

This proposal revises the 800-series headings to reflect the organization of intracranial injuries and introduces the term “traumatic brain injury” throughout. This proposal also revises the current 850-series concussion codes to reflect current disease classification and revises the index.

Figure 1. Organization of Intracranial Injuries

Figure 1 shows the organization of intracranial injury codes within ICD-9-CM. Brain and skull injuries are sub-divided into skull fractures without intracranial injury (TBI), intracranial injuries (TBI) with skull fracture, and intracranial injuries (TBI) without skull fracture. The latter sub-division is further sub-divided into three groups: (1) intracranial injuries not associated with specific brain damage (e.g. concussion), (2) intracranial injuries associated with specific brain damage (e.g. contusions, lacerations, or hemorrhages), and (3) other and unspecified intracranial injuries. All groups are stratified by loss of consciousness.



**Proposal #1a: Change section heading to:**

***INTRACRANIAL INJURY (TRAUMATIC BRAIN INJURY) DUE TO FRACTURE OF SKULL (800-804)***

Fifth digit subclassification for 800-801, 803-804 codes):

- 0 unspecified state of consciousness
- 1 with no loss of consciousness
- 2 with brief [less than one hour] loss of consciousness
- 3 with moderate [1-24 hours] loss consciousness
- 4 with prolonged [more than 24 hours] loss of consciousness and return to pre-existing conscious level
- 5 with prolonged [more than 24 hours] loss of consciousness, without return to pre-existing conscious level
- 6 with loss of consciousness of unspecified duration
- 9 with concussion or TBI, unspecified**

**Proposal #1b: Change indexing as follows:**

***Injury, brain (traumatic brain injury) 850-854***  
***See also Injury, intracranial***

***Injury, intracranial (traumatic brain injury) 850-854***

***With no loss of consciousness 850.0***

***Mild TBI 850.11***

***Moderate TBI (loss of consciousness 31-59 minutes) 850.12***

***Moderate TBI (loss of consciousness, 1-24 hours) 850.2***

***Severe TBI (loss of consciousness more than 24 hours) with return to pre-existing level 850.3***

***Severe TBI (loss of consciousness more than 24 hours) without return to pre-existing level 850.4***

***With unspecified duration 850.5***

***TBI, unspecified 850.9***

**Proposal #1c: Change section heading to:**

***INTRACRANIAL INJURY (TRAUMATIC BRAIN INJURY), EXCLUDING THOSE WITH SKULL FRACTURE (850-854)***

Fifth digit subclassification for 851-854 codes):

- 0 unspecified state of consciousness
- 1 with no loss of consciousness
- 2 with brief [less than one hour] loss of consciousness
- 3 with moderate [1-24 hours] loss consciousness
- 4 with prolonged [more than 24 hours] loss of consciousness and return to pre-existing conscious level
- 5 with prolonged [more than 24 hours] loss of consciousness, without return to pre-existing conscious level
- 6 with loss of consciousness of unspecified duration
- 9 with concussion or TBI, unspecified**

**PROPOSAL #1d: Differentiate TBI under 850**

**850 Intracranial Injury (Traumatic Brain Injury) Not Associated with Specific Brain Injury**

**850.0 With no loss of consciousness**

***Concussion or mild traumatic brain injury with mental confusion or disorientation, without loss of consciousness***

**850.1 With brief loss of consciousness**

***Loss of consciousness for less than one hour***

**850.11 With loss of consciousness of 30 minutes or less**

***Mild traumatic brain injury with loss of consciousness of 30 minutes or less***

**850.12 With loss of consciousness from 31 to 59 minutes**

***Moderate traumatic brain injury with loss of consciousness from 31 to 59 minutes***

- 850.2 **With moderate loss of consciousness**  
Loss of consciousness for 1-24 hours  
***Moderate traumatic brain injury***
- 850.3 **With prolonged loss of consciousness and return to pre-existing conscious level**  
Loss of consciousness for more than 24 hours with complete recovery  
***Severe traumatic brain injury, with severe LOC, with return to pre-existing conscious level***
- 850.4 **With prolonged loss of consciousness, without return to pre-existing conscious level**  
***Severe traumatic brain injury, with severe LOC, without return to pre-existing conscious level***
- 850.5 ***With loss of consciousness of unspecified duration***
- 850.9 Unspecified**

**Guidance Note:** *The severity stratification in 850 differs from 851-854 codes.*

**PROPOSAL #1e: Change headings in 851-853 as follows:**

***851 Traumatic brain injury due to cerebral laceration and contusion***

***852 Traumatic brain injury due to subarachnoid, subdural, and extradural hemorrhage, following injury***

***853 Traumatic brain injury due to other and unspecified intracranial hemorrhage following injury***

**Guidance Note:** *For TBI not associated with other intracranial injuries with known severity, code 850.0-850.4. For TBI associated with specified brain injuries with known severity, code 851-853 with .0 to .5. For other or unspecified intracranial injuries unknown severity, code 854.6. For TBI with specified intracranial brain injuries of unknown severity, code 851-853 with .6. For TBI not associated with other intracranial injuries of unknown severity, code 850.5. For unspecified TBI not associated with other intracranial brain injuries, code 850.9. For unspecified TBI associated with specified intracranial brain injuries, code 851-853 with .9. For unspecified intracranial brain injury, code 854.9.*

**PROPOSAL #2: Add Acute Symptoms Related to TBI**

**DISCUSSION:** Common sequelae of TBI include physical or sensory deficits such as headaches, dizziness, tinnitus, blurred vision, sleep disturbances, and fatigue; cognitive and communication deficits such as attention, memory, confusion, thinking, and executive functions; and emotional or behavioral symptoms such as irritability, agitation, emotional lability, personality changes, affective disturbances, impulsivity, and disinhibition. Under current coding rules, TBI symptoms are not paired with injury codes with every episode of care making it difficult to associate various symptoms to TBI, to track symptoms, identify unusual symptom patterns, or predict cost of care.

We propose a new code to define acute manifestations of TBI. Code 349.3 will be used to describe acute physical, cognitive, or emotional/behavioral manifestations of TBI. The specific

symptom or condition observed will be identified by other symptom or condition coded elsewhere in ICD-9-CM. These code pairs are intended to be coded for each episode of care.

349.3 Acute manifestation of traumatic brain injury

***Use additional code to identify the condition or symptom***

***Includes:*** 800-801, 803-804, or 850-854.

***Excludes*** postconcussional syndrome (310.2)  
late effects of traumatic brain injury (905.0, 907.0)

### **PROPOSAL #3: Add Cognitive Symptom Codes**

Codes in the 349.4x series will be used to describe cognitive symptoms of conditions classified elsewhere. Cognitive impairment refers to decreased memory, concentration, attention, and executive function deficits including information processing, goal setting, planning, organizing, prioritizing, self-monitoring, problem solving, judgment, decision making, spontaneity, and flexibility in changing actions when they are not productive. Cognitive and memory conditions related to brain damage are currently coded in several places in ICD-9-CM. Cognitive and memory deficits are coded as non-psychotic conditions related to mental disorders related to brain damage (310-series). Cognitive conditions are coded as 310.1 (personality changes) and memory changes are coded as 310.8 (other non-psychotic mental disorders). Unlike 310.2, which is specifically related to TBI, these codes are not specific to TBI and may be due to other organic brain damage. Two other codes exist for memory (780.93) and cognitive impairment (331.83), but these codes have exclusions for brain damage and TBI.

***Example:*** acute memory deficit related to TBI: Coded as 349.42 (memory deficit) and 349.3 (acute manifestation of TBI)

This proposal adds new specificity to cognitive deficits due to conditions classified elsewhere. These codes are not specific to TBI and may be used to associate cognitive symptoms due to other conditions. The codes are placed in a new section in Chapter 6 (Nervous System and Sense Organs) consistent with the 331.83 code.

#### ***349.4 Cognitive symptoms due to conditions classified elsewhere***

***For TBI, code with 349.3 for acute symptoms of TBI and 905.0 or 907.0 for late effects of TBI.***

***Excludes:*** Conditions classifiable to nonpsychotic mental health conditions due to organic brain damage (310.0-310.9)  
mild cognitive impairment, so stated (331.83)  
memory loss (780.93)  
late effects of cerebrovascular disease (438)  
memory loss (780.93)

***349.41 Attention or concentration deficit***  
***Including but not limited to concentration, vigilance***

***349.42 Memory deficit***  
***Including but not limited to working memory, episodic memory (including remote episodic memory), semantic memory, autobiographical memory, implicit memory/perceptual memory***

**349.43** *Language or speech deficit*  
*Including but not limited to comprehension, naming, repetition, fluency, reading, spelling, writing*

**349.44** *Visiospatial deficit*  
*Including but not limited to praxis, performing calculations, sense of direction*

**349.45** *Psychomotor deficit*  
*Including but not limited to cognitive processing speed, psychomotor reaction time*

**349.46** *Frontal lobe and executive function deficit*  
*Including but not limited to generative abilities, task setting, monitoring, inhibition, shifting attention, task shifting, goal formation, planning, completing goal directed plans, problem solving, abstraction, reasoning, cognitive flexibility, decision making, judgment, energization, volition, social conduct*

**349.48** *Other cognitive symptoms*

**349.49** *Unspecified cognitive symptoms*

#### **PROPOSAL #4: Coding Other Symptoms**

Codes in the 349.5x series will describe other symptoms associated with conditions classified elsewhere. This proposal parallels ICD-10-CM Symptoms and Signs Involving Cognition, Perception, Emotional State and Behavior (R40-R46). ICD-10-CM allows coding of signs and symptoms involving cognition, perception, behavior, and emotional state as signs and symptoms when they are not part of mental health disorders or syndromes. The diagnostic significance of these symptoms must be determined before the diagnostic code is assigned. When such symptoms are noted to be part of a disorder or syndrome, the appropriate mental health code is assigned. We propose to duplicate this coding strategy in ICD-9-CM.

American Psychiatric Association's DSM-V TBI Subcommittee viewed earlier TBI proposals as problematic because they set a precedent in which cognitive and behavioral syndromes were not included in the ICD-9-CM mental disorders chapter. APA argued that cognitive, emotional, and behavioral syndromes can emerge as the result of brain trauma, infection, stroke, endocrine or demyelinating brain disorders that affect the same areas of the brain involved with specific mental disorders. These conditions are coded as "organic" mental disorders in the current ICD and DSM.

In response to the APA's concerns, VHA proposes a series of symptoms associated with conditions classified elsewhere but commonly observed in cases of TBI. These codes are not intended to substitute for syndromes, disorders, or conditions more appropriately described elsewhere in ICD-9-CM. Rather, they are simply observed signs and symptoms. The codes in this series would be utilized in two contexts. First, they could be used if relevant clinical evaluations were conducted and the any specific syndromes, disorders, or conditions that could give rise to the symptoms or signs were excluded. Second, they could be used to indicate symptoms or signs that require further clinical evaluation during the period of time before such evaluations were completed; their use in this context would be with the understanding that any neurological or

mental health disorders or syndromes that could give rise to the symptoms would be coded elsewhere after evaluation by qualified professionals. During the acute stage, mental health conditions would be coded using existing mental health codes (290-312) and would be paired with the acute TBI code (349.3) to indicate their association with TBI.

This proposal adds new specificity to emotional/behavioral symptoms due to conditions classified elsewhere. These codes are not specific to TBI and may be used to associate emotional/behavioral symptoms due to other conditions. These codes would be utilized when specific syndromes, disorders, or conditions were excluded, or while awaiting evaluations of their diagnostic significance by qualified professionals.

**349.5 Other symptoms due to conditions classified elsewhere**

**For TBI, code with 349.3 for acute symptoms of TBI and 905.0 or 907.0 for late effects of TBI.**

**Excludes: non-psychotic mental health syndromes and conditions (290-310.9)**

**349.51 Irritability**

**349.52 Impulsivity or disinhibition**

**349.53 Emotional lability**

**349.54 Anxiety or depressive symptoms**

**349.55 Apathy or lack of spontaneity**

**349.56 Sensitivity to light or noise**

**349.58 Other emotional/behavioral symptoms**

**349.59 Unspecified emotional/behavioral symptoms**

**PROPOSAL #5: Changes in Late Effects**

**DISCUSSION:** There are several late effect codes (905.0 and 907.0). These are all late effects (sequelae that persist after the acute stage of disease or injury). These late effects are related to TBI classified elsewhere.

LATE EFFECT OF SKULL OR FACIAL FRACTURE (905.0)

LATE EFFECT OF INTRACRANIAL INJURY WITHOUT MENTION OF SKULL FRACTURE (907.0)

While the majority of patients with mild TBI recover completely within days or weeks, some patients will be symptomatic for much longer periods of time. Ten to 15 percent of mild TBI patients may be symptomatic after a year. These long-lasting symptoms are often referred to as post-concussive syndrome (PCS). There is no accepted standard for when the mild TBI ceases to be acute and becomes persistent.

The American Psychiatric Association (DSM-IV) defined post-concussive syndrome (PCS) as (a) history of TBI; (b) evidence from neurobehavioral testing of cognitive deficits in attention and/or memory; (c) three or more of the following symptoms that appear after injury and persist for three months or more: fatigue, sleep disturbance, headaches, vertigo or dizziness, irritability, apathy or affective disturbance, or personality changes; (d) symptoms in (b) and (c) begin or worsen after injury; (e) interference with social or occupational functioning; and (f) symptoms are not consistent with dementia and are not better explained by other mental disorders. Symptom onset or course must be contiguous with TBI, distinguishable from pre-existing conditions, and of a minimum duration. Although DSM-IV defines post-concussion syndrome, it does not specifically define mild, moderate, or severe TBI.

ICD-10 defined PCS a history of TBI condition exhibited three or more of the following:

- Headache
- Dizziness
- Fatigue
- Irritability
- Insomnia
- Difficulty concentrating
- Memory problems
- Intolerance of stress, emotion, or alcohol

There are several reasons why post-concussive syndrome is not the appropriate choice for late effects of TBI. First, patients and their families have expressed a concern that a mental health diagnosis for persistent effects of mild TBI when there are no behavioral or emotional manifestations unfairly labels patients and causes unintended stigma. Similarly, giving a mental health diagnosis for cognitive or memory disorders related to traumatic brain injury misrepresents these symptoms as mental disorders. Moreover, post-concussive syndrome refers only to the persistent effects of mild TBI. Late effects are likely to occur in more severe forms of TBI.

We propose to clarify the use of the late effects codes 905.0 and 907.0 to exclude acute manifestations of TBI (349.3), post-concussive syndrome (310.2), and late effects of cerebrovascular disease (438).

**Example:** late effect of TBI, physical symptoms, memory impairment. Coded as 349.42 and 907.01 and 784.0

905 Late effects of musculoskeletal and connective tissue injuries

***Use additional code to identify the condition or symptom***

**Excludes:** ***acute manifestations of TBI (349.3)***  
***late effects of cerebrovascular disease (438)***

905.0 Late effect of fracture of skull and face bones  
Late effect of injury classifiable to 800-801 and 803-804

907 Late effects of injuries to the nervous system

***Use additional code to identify the condition or symptom***

**Excludes:** ***acute manifestations of TBI (349.3)***  
***late effects of cerebrovascular disease (438)***  
***postconcussional syndrome (310.2)***

907.0 Late effect of intracranial injury without mention of skull fracture  
Late effect of injury classifiable to 850-854

#### **Proposal #6: Other Miscellaneous and Conforming Changes**

**DISCUSSION:** To address the overlap between injury (TBI) codes and mental health diagnoses, we propose to reserve post-concussive syndrome (310.2) for a persistent (at least 3 months), complex presentation of cognitive, memory, physical, and personality disturbances related to TBI. This code would not be used for moderate or severe TBI or for presentations that are not

consistent with DSM-IV criteria. This code is appropriate as a diagnosis when complex symptoms are the dominant presentation and late effect TBI codes are not appropriate. The proposal allows practitioners to classify symptoms of TBI as organic mental health conditions or as neurological conditions. Other conforming changes include exclusions for alternations of consciousness or awareness (780.02) and memory loss (780.93) not associated with TBI; change in the exclusion note for 780.93 (change 310.1 to 310.8); and change the indexing for memory impairment from 310.1 to 310.8. These codes will be used to describe non-traumatic memory or cognitive impairment. For example, a cognitive deficit due to anoxia during surgery for a leg fracture would be coded as 331.83. Mild memory impairment would be coded as 780.93. It would not be coded as TBI.

We also propose several changes in Chapter 16 (Symptoms, Signs, and Ill-defined Conditions) including exclusion for memory loss due to TBI in 780.93 and exclusion for cognitive impairment due to TBI in 331.83.

### **Changes in Chapter 5—Mental Disorders**

310 Specific nonpsychotic mental disorders due to brain damage

310.1 Personality change due to conditions classified elsewhere  
Cognitive or personality change of other type, of nonpsychotic severity  
Organic psychosyndrome of nonpsychotic severity  
Presbyophrenia NOS  
Senility with mental changes of nonpsychotic severity

**Excludes:** memory loss of unknown cause (780.93)  
***mild cognitive impairment (331.83)***  
***postconcussive syndrome (310.2)***

310.2 Postconcussion syndrome  
Postcontusion syndrome or encephalopathy  
Posttraumatic brain syndrome, nonpsychotic  
Status postcommotio cerebri

**Excludes:** any organic psychotic conditions following head injury (293.0-294.0)  
frontal lobe syndrome (310.0)  
postencephalitic syndrome (310.8)

310.8 Other specified nonpsychotic mental disorders following organic brain damage  
Mild memory disturbance  
Postencephalitic syndrome  
Other focal (partial) organic psychosyndromes

**Excludes:** ***memory loss (780.93)***

### **Changes in Chapter 6—Nervous System and Sense Organs**

331.8 Other cerebral degeneration

331.83 Mild cognitive impairment, so stated  
Mild cognitive deficit due to non-traumatic brain damage  
Executive function deficits

**Excludes:** ***conditions classifiable to 800-801, 803-804, or 850-854.***  
***cognitive impairments (349.41-349.49)***

**Changes in Chapter 16—Symptoms, Signs, and Ill-defined Conditions**

780 General symptoms

780.0 Alteration of consciousness

Excludes: coma:

diabetic (250.2-250.3)

hepatic (572.2)

originating in the perinatal period (779.2)

**conditions classifiable to 800-801, 803-804, or 850-854.**

780.02 Transient alteration of awareness

Excludes: conditions classifiable to 800-801, 803-804, or 850-854.

780.93 Memory loss

Excludes: **conditions classifiable to 800-801, 803-804, or 850-854**

**memory deficit (349.42)**

**Revise: mild memory disturbance due to organic brain damage (310.8)**

**New Screening Code for TBI**

**DISCUSSION:** VA and DoD screens patients and service members who are at risk for TBI. A code is needed to track this vital step in the identification and treatment of patients with possible TBI. Since April 2007, VHA has screened over 130,000 patients. About 19% screened positive for TBI and were referred for more comprehensive testing to determine diagnosis.

**V80 Special screening for neurological, eye, and ear diseases**

***V80.01 Traumatic brain injury***

**New History of Injury Code for TBI**

**DISCUSSION:** A code is needed to track history of TBI to associate symptoms with TBI. This new code specifically identifies a history of TBI. This code will be paired with symptoms in the acute stage to associate the symptoms with TBI.

**V15.5 Injury**

***New code: V15.52 History of traumatic brain injury***

**New History of Combat and Operational Stress Reaction**

**DISCUSSION:** Combat and operational stress reaction (COSR) falls in a range of stress related responses known as Combat and Operational Stress Behaviors (COSB) and is one presentation in a class of traumatic stress behaviors that also include adaptive stress reactions e.g. trust, loyalty unit cohesiveness, and esprit de corps; and misconduct stress behaviors (e.g. minor breaches of orders or regulations or more serious violations of the Uniform Code of Military Justice (UCMJ) and civil or criminal laws. COSR and misconduct stress behaviors comprise the maladaptive stress reactions. COSR is characterized by dissociative states immediately after overwhelming trauma. By definition, COSR is an acute stress reaction lasting no longer than one month. More persistent (chronic) stress reactions are classified as adjustment reactions (309.x) or PTSD (309.81). Typically, persons with acute stress reactions are occupationally functional and capable of performing their duties. Traumatic exposures may be single or prolonged. Stressors may be related to combat situations or other operational situations such as those experienced by police officers, fire fighters, and rescue personnel.

Many reactions look like symptoms of mental illness (such as panic, extreme anxiety, depression, hallucinations), but they are only transient reactions to the traumatic stress of combat or the cumulative stresses of operations. Symptoms may manifest as hyper-alertness, fear, anxiety, irritability, anger, rage, grief, self-doubt, guilt, physical stress complaints, inattention or carelessness, loss of confidence, loss of hope and faith, depression, insomnia, impaired duty performance, erratic actions and outbursts, freezing or immobility, terror or panic, total exhaustion, apathy, loss of skills, memory loss, impaired speech/muteness, impaired vision, touch, or hearing, weakness or paralysis, hallucinations, or delusions

Mild Stress Reactions include both physical, emotional and behavioral symptoms. These symptoms include, but are not limited to:

- Fatigue
- Jumpiness
- Sweating
- Difficulty sleeping
- Rapid heartbeat
- Dizziness
- Nausea, vomiting or diarrhea
- Frequent urination
- Slow reaction times
- Dry mouth
- Muscular tension
- Anxiety
- Grief
- Inability to concentrate
- Nightmares
- Self doubt
- Anger
- Excessive concern with minor issues
- Loss of confidence in self and unit
- Indecisiveness
- Inattention
- Carelessness
- Hyper-alertness
- Lack of motivation
- Irritability
- Lack of initiative
- Tears, crying
- Inability to relax
- Argumentative

COSR is not the same as Post Traumatic Stress Disorder (PTSD). COSR represents the broad group of physical, mental, and emotional signs that result from combat and operational stress exposure. COSR is considered a sub-clinical diagnosis with a high recovery rate if provided appropriate attention and time. PTSD is an anxiety disorder associated with serious traumatic events and characterized by such symptoms as survivor guilt, reliving the trauma in dreams, numbness and lack of involvement with reality, or recurrent thoughts and images. PTSD is a clinical diagnosis as defined by the Diagnostic & Statistical Manual of Mental Disorders (DSM IV-TR) and the International Statistical Classification of Diseases and Related Health Problems (ICD-10). PTSD is one of many possible long term outcomes resulting from combat and operational stress exposure and collectively classified as post combat and operational stress. COSR and PTSD may share some common symptoms in presentation, however, COSR is recognizable immediately or shortly after exposure to potentially traumatic events and captures any recognizable reaction resulting from exposure to that event or series of events. PTSD has specific chronological requirements and symptom markers that must be satisfied in order to diagnose. PTSD is only diagnosable by a trained and credentialed healthcare provider. Military personnel and providers must focus their efforts on the management of COSR and mitigating factors to control COSR in an effort to shape the long term reaction of their organization and individual Soldiers.

#### **V15.4 Psychological trauma**

***New code: V15.43 History of combat and operational stress reaction***

### **New Dysphagia Screening Code**

**DISCUSSION:** There are numerous examples of special screening in ICD-9-CM (V73-V82). Swallowing and feeding status is commonly screened before allowing feeding or medicating by mouth. Dysphagia is a potentially serious complication of stroke.

- 27-50% of stroke patients develop dysphagia.
- 43-54% of stroke patients with dysphagia will experience aspiration and of those patients 37% will develop pneumonia. Screening is part of Medicare Physician Quality Reporting Indicator (PQRI).

Screening is part of Joint Commission Performance Measurement and Improvement for Disease-Specific Care Certification (DSC) Programs (DSC/Stroke-07). The importance of assessing a patient's ability to swallow, before approving the oral intake of fluids, food or medication, has been noted in multiple practice guidelines:

- Post-Stroke Rehabilitation Guideline, Agency for Healthcare Research and Quality (formerly Agency for Health Care Policy and Research), 1995
- Management of Patients with Stroke, Identification and Management of Dysphagia Scottish Intercollegiate Guideline Network, 1997
- Duncan et al, Stroke Rehabilitation Clinical Practice Guidelines (Stroke. 2005;36:e100-e143.)
- Kaiser Permanente Clinical Practice Guidelines for Acute Stroke Quartet III Inpatient Management, 1998
- VA/DoD Clinical Practice Guideline for the Management of Stroke Rehabilitation in the Primary Care Setting, Department of Veteran Affairs Department of Defense, 2003

## **V80 Special screening for neurological, eye, and ear diseases**

### **V80.02 Swallowing and feeding status**

### **Changes in V57 Codes**

## **V57 Care involving use of rehabilitation procedures**

### **Revised code: *V57.3 Encounter with speech-language pathologist***

**DISCUSSION:** The descriptor for V57.3 (speech therapy) is widely interpreted by coders as "encounter with speech-language pathologist. Such encounters include more than speech therapy and may involve treatment of voice, language, fluency, swallowing problems, and cognitive disorders. Other codes in this section (e.g. V57.21 and V57.22) already describe an encounter rather than a specific procedure (speech therapy).

### **New code: *V57.5 Encounter for blind or low-vision rehabilitation***

<http://www.cms.hhs.gov/InfoExchange/Downloads/RTCvisionrehab.pdf>

**DISCUSSION:** Add a new code for encounter for blind or low-vision rehabilitation. Low vision services may be supplied by the following:

- Physicians;
- Occupational therapists;
- Certified low vision therapists;

- Certified orientation and mobility specialists; and
- Certified vision rehabilitation therapists.

CMS is conducting a Low Vision Rehabilitation Demonstration and has extended Medicare coverage under Part B for the same rehabilitation services to treat vision impairment that would otherwise be payable when provided by an occupational or physical therapist if they are now provided by a certified vision rehabilitation professional under the general supervision of a qualified physician. This demonstration will last for five years through March 31, 2011, and is limited to services provided specifically in New Hampshire, New York City (all 5 boroughs), North Carolina, Atlanta, Kansas, and Washington State. Under this Low Vision Rehabilitation Demonstration, Medicare will cover low vision rehabilitation services to people with a medical diagnosis of moderate or severe vision impairment that is not correctable by conventional methods or surgery (i.e., cataracts).

Vision rehabilitation maximizes the use of residual vision to reduce the disabling effects of blindness and low vision. Blind rehabilitation typically involves training in low-vision devices, orientation and mobility training, and independent living. These services also include adjustment to blindness counseling, patient and family education, benefits analysis, comprehensive residential inpatient training, outpatient rehabilitation services, and research. Programs specialize in five areas of training: orientation and mobility, living skills, manual skills, and computer assisted training. Principles of independent travel (often referred to as Orientation and Mobility) are taught using a cane." Maximum use of any remaining vision to assist travel is evaluated, and in many cases low vision devices are provided and made an integral part of mobility training. Sensory training classes teach the patient how to more effectively use remaining senses, particularly hearing, as an aid in travel. In addition, exercises in mental mapping serve to enhance the veteran's orientation while traveling through different kinds of environments.

Orientation and Mobility instruction in relatively simple routes to increasingly complex routes builds the veteran's confidence in the ability to travel independently. By the completion of the instruction the veteran should have a realistic understanding of his or her travel capacity, and the ability to travel safely and independently in both familiar and unfamiliar areas.

### **Living Skills**

This phase of the rehabilitation program includes communication, activities of daily living, and independent living.

**Communication:** Instruction is designed to enhance and restore abilities in written and spoken communication. Rehabilitation programs provide opportunities to learn and use strategies and tools for communication, such as typing, handwriting, telling time, management of financial records, Braille, recording devices and other electronic equipment. These courses help the patients to keep up with current events, correspondence and personal files, and help to maintain a normal means of communication with other people.

**Activities of Daily Living:** Strategies are provided to patients to help them accomplish tasks ranging from routine (managing money, making a cup of coffee) to complex activities such as arranging an entire wardrobe, shopping, kitchen organization, and preparation of complete meals. The emphasis is on learning by doing; techniques and methods are taught and then integrated into the patient's daily routine. By the completion of the program the veteran should be capable of handling daily living tasks with complete or greatly enhanced independence. Family members often experience a reduction in the burden of care they have been providing to the visually impaired family member.

**Independent Living Program:** Independent living programs are designed primarily for those patients who will be living alone following their rehabilitation. After extensive instruction, patients are provided with opportunities to practice newly acquired skills.

### **Manual Skills**

This program area provides patients who have little or no vision with the means to develop and improve organizational skills, awareness of the environment, safe and efficient work habits, spatial relationships, and an understanding and mastery of tactual ability. The training focuses on the sequential development of skills and builds confidence. Training is generally presented in several areas, and may include (but is not limited to) handcrafts, home mechanics, woodworking, metalworking, leatherwork, weaving and ceramics.

The initial training area consists of hand crafting objects in order to develop the individual's confidence in their non-visual senses. The home mechanics training is an introduction to the tools and organizational techniques that allows an individual to perform simple repairs and assembly. Advanced training focuses on the use of adaptive measuring devices, hand tools and power equipment typically used in woodworking.

The training is not vocational, although some patients have developed vocational interests or hobbies after participating in this training. Manual skills training may enable patients to resume performing home repairs or other related activities at home, further adding to the person's self-confidence and motivation.

### **Visual Skills**

Visual skills instruction focuses on effective use of remaining vision through the development and use of visual motor and visual perceptual skills. Assessment and instruction with special optical and electronic devices that are designed to meet the needs of people who are visually impaired is provided. Ergonomic equipment such as special lighting and positioning devices are provided to assist patients in using vision effectively. Lessons may employ the use of visual and ergonomic equipment and visual skills that address near, intermediate and distance tasks. This approach allows patients who have some residual vision to accomplish a variety of tasks, such as reading printed material, and to use their vision to perform routine activities of daily life, independent travel, etc. An important goal of the visual skills area is to help patients to develop a realistic assessment and understanding of their visual capabilities and limitations so that they may better use their vision in daily life.

### **Computer Access Training Section (CATS)**

The CATS program provides specialized services to eligible patients including: a comprehensive adaptive computer needs assessment, recommendation of appropriate computer equipment, training on recommended equipment, issuance of equipment upon successful completion of training, and follow-up technical support as required. Patients may be able to receive local training and issuance if there are local qualified providers in the patients' communities.

The equipment issued by CATS is state-of-the-art computer technology with all necessary peripherals and accessible hardware/software to meet the patients' identified needs. Training encompasses comprehensive instruction on accessible hardware/software, computer literacy, familiarization to computer keyboard, fundamentals of disk operating systems and fundamentals of word processing, internet access and email. Exceptions to this training regimen are determined on a case-by-case basis.

### **Physical Conditioning**

The onset of vision loss may severely disrupt exercise or recreational activities that many patients have incorporated into their daily lives, causing a decrease in muscular tone and stamina. Programs may offer physical training under medical supervision. Not only does this training improve the physical condition of the veteran, but it also teaches the veteran exercises that may be completed at home to maintain good health.

Exercises and activities can range from relatively moderate to relatively vigorous, depending on the ability and needs of the veteran. Even a moderate program of regular exercise

can assist patients in management of complicated medical situations. Although many patients are uncertain at first of their ability to perform regular exercise or participate in leisure activities, they are often surprised at how much they can accomplish with time and patience.

**Recreation**

Just as the pattern of normal exercise and activity can be affected by blindness, so can recreation that brings pleasure and enjoyment to a person's life. Recreational activities are offered for groups as well as for individuals. Opportunities to attend sporting events, theaters, movies, concerts, as well as social gatherings of various kinds are planned for all patients. The aim of the recreation program is to renew interest in activities that have been enjoyed in the past, and to stimulate new interests. Possible social and recreational activities that may be available in the veteran's home area are discussed and strategies for realistic involvement are explored.