

## TRAUMATIC BRAIN INJURY (TBI)

### *DoD Standard Surveillance Case Definition for TBI Adapted for AFHSB Use*

#### Background

A case definition for TBI was originally developed in August 2008 by policy makers and medical experts from all Services and from several DoD and Health and Human Services (HHS) agencies. The Defense and Veterans Brain Injury Center (DVBIC) monitors the TBI definition for the military health system (MHS) and, together with the above agencies, has revised the original definition several times since its creation. These revisions are outlined below (see *Development and Revisions* section).

#### Clinical Description

In the U.S. Military Health System (MHS), traumatic brain injury (TBI) is defined as “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 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.”<sup>1</sup>

#### Note to Investigators

For investigators interested in the crosswalk between the ICD-9-CM and ICD-10-CM codes for this case definition, please refer to *Appendix I* at the end of this document. This update includes no changes to the previously documented ICD9 code set for TBI dated November 2011. No retroactive changes to the ICD9 code set and surveillance methodology are planned.

#### Case Definition and Incidence Rules

For surveillance purposes, a case of TBI is defined as:

- *One hospitalization* with any of the defining diagnoses of TBI in *any* diagnostic position (see ICD9 code list below);
- *One outpatient medical encounter* with any of the defining diagnoses of TBI in *any* diagnostic position (see ICD9 and ICD10 code lists below).

#### *Incidence rules:*

For individuals who meet the case definition:

- The incidence date is considered the date of the first hospitalization or outpatient medical encounter that includes a defining diagnosis of TBI.

*(continued on next page)*

<sup>1</sup> Memorandum from the Assistant Secretary of Defense (Health Affairs). Traumatic Brain Injury: Updated Definition and Reporting, dated 6 April 2015. U.S. Department of Defense, Washington, DC.



### Case Definition and Incidence Rules *(continued)*

- An individual is considered an incident case only *once per lifetime*.

#### **Exclusions:**

- None

### TBI Severity Classifications<sup>2</sup>

**[m] - Concussion/Mild TBI is characterized by the following:** Confused or disoriented state which lasts less than 24 hours; or loss of consciousness for up to 30 minutes; or memory loss lasting less than 24 hours. Excludes penetrating TBI. A CT scan is not indicated for most patients with a Mild TBI. If obtained, it is normal.

**[M] - Moderate TBI is characterized by the following:** Confused or disoriented state which lasts more than 24 hours; or loss of consciousness for more than 30 minutes, but less than 24 hours; or memory loss lasting greater than 24 hours but less than seven days; or meets criteria for Mild TBI except an abnormal CT scan is present. Excludes penetrating TBI. A structural brain imaging study may be normal or abnormal.

**[S] - Severe TBI is characterized by the following:** Confused or disoriented state which lasts more than 24 hours; or loss of consciousness for more than 24 hours; or memory loss for more than seven days. Excludes penetrating TBI. A structural brain imaging study may be normal but usually is abnormal.

**[P] - Penetrating TBI, or open head injury, is characterized by the following:** A head injury in which the scalp, skull and dura mater (the outer layer of the meninges) are penetrated. Penetrating injuries can be caused by high-velocity projectiles or objects of lower velocity such as knives, or bone fragments from a skull fracture that are driven into the brain.

**[U] - Unclassifiable TBI**

### ICD-10-CM Codes

The following ICD10 codes and are included in the case definition:

*Note: The ICD10 code list below does not specify all parent (non-billable) codes. All parent codes within a series, indicated by the notation “^” are included in the code set and should be assigned the lowest severity within the series. See Appendix II: TBI ICD9 and ICD10 Codes in Excel for a complete list of codes.*

Condition	ICD-10-CM Codes	Severity
Traumatic Brain Injury  (Closed Injuries)	<b>Other Personality and Behavioral Disorders Due to Known Physiological Condition</b>	
	F07.81 (post-concussion syndrome)	[m]
	<b>Injury to Optic Chiasm and Optic Tract</b>	

<sup>2</sup> TBI Severity Classifications. Defense and Veterans Brain Injury Center. *DoD Worldwide Numbers for TBI*. See <http://dvbic.dcoe.mil/dod-worldwide-numbers-tbi>; accessed July 2015.



S04.02 <sup>^</sup> (injury of optic chiasm)	[S]
- S04.02XA (injury of optic chiasm, initial encounter)	
S04.03 <sup>^</sup> (injury of optic tract and pathways)	[S] <sup>3</sup>
- S04.031A (injury of optic tract and pathways, <i>right</i> eye, initial encounter)	
- S04.032A (injury of optic tract and pathways, <i>left</i> eye, initial encounter)	
- S04.039A (injury of optic tract and pathways, <i>unspecified</i> eye, initial encounter)	
S04.04 <sup>^</sup> (Injury of visual cortex)	[S]
- S04.041A (injury of visual cortex, <i>right</i> eye, initial encounter)	
- S04.042A (injury of visual cortex, <i>left</i> eye, initial encounter)	
- S04.049A (injury of visual cortex, <i>unspecified</i> eye, initial encounter)	
<b>S06 Intracranial Injury</b>	
<b>S06.0<sup>^</sup> Concussion</b>	[m]
- S06.0X0A (concussion w/o LOC, initial encounter)	[m]
- S06.0X1A (concussion w/LOC of 30 mins or less, initial encounter)	
- S06.0X2A (concussion w/LOC of 31-59 mins, initial encounter)	[M]
- S06.0X3A (concussion w/LOC of 1 hr to 5 hrs 59 mins, initial encounter)	
- S06.0X4A (concussion w/LOC of 6-24 hrs., initial encounter)	
- S06.0X5A (concussion w/LOC > 24hrs with return to pre-existing conscious level, initial encounter)	[S]
- S06.0X6A (concussion w/LOC > 24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)	
- S06.0X7A (concussion w/LOC of any duration with death due to brain injury prior to regaining consciousness, initial encounter)	
- S06.0X8A (concussion w/LOC of any duration with death due to other causes before regaining consciousness, initial encounter)	
- S06.0X9A (concussion w/LOC of unspecified duration, initial encounter)	[m]
<b>S06.1 Traumatic Cerebral Edema</b>	
<b>S06.1X (traumatic cerebral edema)</b>	[M]
- S06.1X0A (traumatic cerebral edema w/o LOC, initial encounter)	[M]
- S06.1X1A (traumatic cerebral edema w/LOC of 30 min or less, initial encounter)	
- S06.1X2A (traumatic cerebral edema w/LOC of 31-59 minutes, initial encounter)	

<sup>3</sup> Atipo-Tsiba PW, et al. Traumatic dysfunction of the optic chiasm. March 2003. Klin Monbl Augenheilkd.

- S06.1X3A (traumatic cerebral edema w/LOC of 1hr to 5 hrs 59 mins, initial encounter)	
- S06.1X4A (traumatic cerebral edema w/LOC of 6-24 hrs, initial encounter)	
- S06.1X5A (traumatic cerebral edema w/ LOC >24 hrs with return to pre-existing conscious level, initial encounter)	[S]
- S06.1X6A (traumatic cerebral edema w/ LOC >24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)	
- S06.1X7A (traumatic cerebral edema w/LOC of any duration with death due to brain injury prior to regaining consciousness, initial encounter)	
- S06.1X8A (traumatic cerebral edema w/LOC of any duration with death due to other causes prior to regaining consciousness, initial encounter)	
- S06.1X9A (traumatic cerebral edema w/LOC of unspecified duration, initial encounter)	[M]
<b>S06.2 Diffuse Traumatic Brain Injury</b>	
<i>S06.2X (diffuse traumatic brain injury)</i>	[M]
- S06.2X0A (diffuse traumatic brain injury w/o LOC, initial encounter)	[M]
- S06.2X1A (diffuse traumatic brain injury w/LOC of 30 min or less, initial encounter)	
- S06.2X2A (diffuse traumatic brain injury w/LOC of 31-59 minutes, initial encounter)	
- S06.2X3A (diffuse traumatic brain injury w/LOC of 1hr to 5 hrs 59 mins, initial encounter)	
- S06.2X4A, or (diffuse traumatic brain injury w/LOC of 6-24 hrs, initial encounter)	
- S06.2X5A (diffuse traumatic brain injury w/ LOC >24 hrs with return to pre-existing conscious level, initial encounter)	[S]
- S06.2X6A (diffuse traumatic brain injury w/LOC >24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)	
- S06.2X7A (diffuse traumatic brain injury w/LOC of any duration with death due to brain injury prior to regaining consciousness, initial encounter)	
- S06.2X8A (diffuse traumatic brain injury w/LOC of any duration with death due to other causes prior to regaining consciousness, initial encounter)	
- S06.2X9A (diffuse traumatic brain injury w/LOC of unspecified duration, initial encounter)	[M]
<b>S06.3 Focal Traumatic Brain Injury</b>	
<i>S06.30 (unspecified focal traumatic brain injury)</i>	[M]
- S06.300A (unspecified focal traumatic brain injury w/o LOC)	[M]
- S06.301A (unspecified focal traumatic brain injury w/LOC of 30 min or less, initial encounter)	
- S06.302A (unspecified focal traumatic brain injury w/LOC of 31-59 minutes, initial encounter)	

- S06.303A (unspecified focal traumatic brain injury w/LOC of 1hr to 5 hrs 59 mins, initial encounter)	
- S06.304A (unspecified focal traumatic brain injury w/LOC of 6-24 hrs, initial encounter)	
- S06.305A (unspecified focal traumatic brain injury w/LOC >24 hrs with return to pre-existing conscious level, initial encounter)	[S]
- S06.306A (unspecified focal traumatic brain injury w/LOC >24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)	
- S06.307A (unspecified focal traumatic brain injury w/LOC of any duration with death due to brain injury prior to regaining consciousness, initial encounter)	
- S06.308A (unspecified focal traumatic brain injury w/LOC of any duration with death due to other causes prior to regaining consciousness, initial encounter)	
- S06.309A (unspecified focal traumatic brain injury w/LOC of unspecified duration, initial encounter)	[M]
<b><i>S06.31 (contusion and laceration of <u>right</u> cerebrum)</i></b>	[M]
- S06.310A (contusion and laceration of <i>right</i> cerebrum w/o LOC)	[M]
- S06.311A (contusion and laceration of <i>right</i> cerebrum w/LOC of 30 min or less, initial encounter)	
- S06.312A (contusion and laceration of <i>right</i> cerebrum w/LOC of 31-59 minutes, initial encounter)	
- S06.313A (contusion and laceration of <i>right</i> cerebrum w/LOC of 1hr to 5 hrs 59 mins, initial encounter)	
- S06.314A (contusion and laceration of <i>right</i> cerebrum w/LOC of 6-24 hrs, initial encounter)	
- S06.315A (contusion and laceration of <i>right</i> cerebrum w/LOC >24 hrs with return to pre-existing conscious level, initial encounter)	[S]
- S06.316A (contusion and laceration of <i>right</i> cerebrum w/LOC >24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)	
- S06.317A (contusion and laceration of <i>right</i> cerebrum w/LOC of any duration with death due to brain injury prior to regaining consciousness, initial encounter)	
- S06.318A (contusion and laceration of <i>right</i> cerebrum w/LOC of any duration with death due to other causes prior to regaining consciousness, initial encounter)	
- S06.319A (contusion and laceration of <i>right</i> cerebrum w/LOC of <i>unspecified</i> duration, initial encounter)	[M]
<b><i>S06.32 (contusion and laceration of <u>left</u> cerebrum)</i></b>	[M]
- S06.320A (contusion and laceration of <i>left</i> cerebrum w/o LOC)	[M]
- S06.321A (contusion and laceration of <i>left</i> cerebrum w/LOC of 30 min or less, initial encounter)	
- S06.322A (contusion and laceration of <i>left</i> cerebrum w/LOC of 31-59 minutes, initial encounter)	



- S06.323A (contusion and laceration of <i>left</i> cerebrum w/LOC of 1hr to 5 hrs 59 mins, initial encounter)	
- S06.324A (contusion and laceration of <i>left</i> cerebrum w/LOC of 6-24 hrs, initial encounter)	
- S06.325A (contusion and laceration of <i>left</i> cerebrum w/LOC >24 hrs with return to pre-existing conscious level, initial encounter)	[S]
- S06.326A (contusion and laceration of <i>left</i> cerebrum w/LOC >24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)	
- S06.327A (contusion and laceration of <i>left</i> cerebrum w/LOC of any duration w/ death due to brain injury prior to regaining consciousness, initial encounter)	
- S06.328A (contusion and laceration of <i>left</i> cerebrum w/LOC of any duration w/ death due to other causes prior to regaining consciousness, initial encounter)	
- S06.329A (contusion and laceration of <i>left</i> cerebrum w/LOC of <i>unspecified</i> duration, initial encounter)	[M]
<b><i>S06.33 (contusion and laceration of cerebrum, <u>unspecified</u>)</i></b>	[M]
- S06.330A (contusion and laceration of cerebrum, <i>unspecified</i> , w/o LOC, initial encounter)	[M]
- S06.331A (contusion and laceration of cerebrum, <i>unspecified</i> , w/LOC of 30 mins or less, initial encounter)	
- S06.332A (contusion and laceration of cerebrum, <i>unspecified</i> , w/LOC of 31-59 mins, initial encounter); or S06.331A (above)	
- S06.333A (contusion and laceration of cerebrum, <i>unspecified</i> , w/LOC of 1 hr to 5 hrs 59 mins, initial encounter)	
- S06.334A (contusion and laceration of cerebrum, <i>unspecified</i> , w/ LOC of 6 -24 hrs, initial encounter)	
- S06.335A (contusion and laceration of cerebrum, <i>unspecified</i> , w/LOC > 24 hrs with return to pre-existing consciousness level, initial encounter)	[S]
- S06.336A (contusion and laceration of cerebrum, <i>unspecified</i> , w/LOC >24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)	
- S06.337A (contusion and laceration of cerebrum, <i>unspecified</i> , w/LOC of any duration w/ death due to brain injury prior to regaining consciousness, initial encounter)	
- S06.338A (contusion and laceration of cerebrum, <i>unspecified</i> , w/LOC of any duration with death due to other cause prior to regaining conscious, initial encounter)	
- S06.339A (contusion and laceration of cerebrum, <i>unspecified</i> , w/LOC of <i>unspecified</i> duration, initial encounter)	[M]
<b><i>S06.34 (traumatic hemorrhage of <u>right</u> cerebrum)</i></b>	[M]
- S06.340A (traumatic hemorrhage of <i>right</i> cerebrum w/o LOC, initial encounter)	[M]
- S06.341A (traumatic hemorrhage of <i>right</i> cerebrum w/LOC of 30 mins or less, initial encounter)	

- S06.342A (traumatic hemorrhage of <i>right</i> cerebrum w/LOC of 31-59 mins, initial encounter)	
- S06.343A (traumatic hemorrhage of <i>right</i> cerebrum w/LOC of 1 hr to 5 hrs 59 mins, initial encounter)	
- S06.344A (traumatic hemorrhage of <i>right</i> cerebrum with LOC of 6 -24 hrs, initial encounter)	
- S06.345A (traumatic hemorrhage of <i>right</i> cerebrum w/LOC > 24 hrs with return to pre-existing consciousness level, initial encounter)	[S]
- S06.346A (traumatic hemorrhage of <i>right</i> cerebrum w/LOC >24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)	
- S06.347A (traumatic hemorrhage of <i>right</i> cerebrum w/LOC of any duration with death due to brain injury prior to regaining consciousness, initial encounter)	
- S06.348A (traumatic hemorrhage of <i>right</i> cerebrum w/LOC of any duration with death due to other cause prior to regaining consciousness, initial encounter)	
- S06.349A (traumatic hemorrhage of <i>right</i> cerebrum w/LOC of unspecified duration)	[M]
<b><i>S06.35 (traumatic hemorrhage of <u>left</u> cerebrum)</i></b>	[M]
- S06.350A (traumatic hemorrhage of <i>left</i> cerebrum w/o LOC, initial encounter)	[M]
- S06.351A (traumatic hemorrhage of <i>left</i> cerebrum w/LOC of 30 mins or less, initial encounter)	
- S06.352A (traumatic hemorrhage of <i>left</i> cerebrum w/LOC of 31-59 mins, initial encounter)	
- S06.353A (traumatic hemorrhage of <i>left</i> cerebrum, unspecified, LOC of 1 hr to 5 hrs 59 mins, initial encounter)	
- S06.354A (traumatic hemorrhage of <i>left</i> cerebrum w/LOC of 6 -24 hrs, initial encounter)	
- S06.355A (traumatic hemorrhage of <i>left</i> cerebrum w/LOC >24 hrs with return to pre-existing consciousness level, initial encounter)	[S]
- S06.356A (traumatic hemorrhage of <i>left</i> cerebrum w/LOC >24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)	
- S06.357A (traumatic hemorrhage of <i>left</i> cerebrum w/LOC of any duration with death due to brain injury prior to regaining consciousness, initial encounter)	
- S06.358A (traumatic hemorrhage of <i>left</i> cerebrum w/LOC of any duration with death due to other cause prior to regaining consciousness, initial encounter)	
- S06.359A (traumatic hemorrhage of <i>left</i> cerebrum, unspecified, w/ LOC of unspecified duration)	[M]
<b><i>S06.36 (traumatic hemorrhage of cerebrum, <u>unspecified</u>)</i></b>	[M]
- S06.360A (traumatic hemorrhage of cerebrum, <i>unspecified</i> , w/o LOC, initial encounter)	[M]
- S06.361A (traumatic hemorrhage of cerebrum, <i>unspecified</i> , w/ LOC of 30 mins or less, initial encounter)	

- S06.362A (traumatic hemorrhage of cerebrum, <i>unspecified</i> , w/ LOC of 31-59 mins, initial encounter)	
- S06.363A (traumatic hemorrhage of cerebrum, <i>unspecified</i> , LOC of 1 hr to 59 mins, initial encounter)	
- S06.364A (traumatic hemorrhage of cerebrum, <i>unspecified</i> , w/LOC of 6 -24 hrs, initial encounter)	
- S06.365A (traumatic hemorrhage of cerebrum, <i>unspecified</i> , w/LOC > 24 hrs with return to pre-existing consciousness level, initial encounter)	[S]
- S06.366A (traumatic hemorrhage of cerebrum, <i>unspecified</i> , LOC >24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)	
- S06.367A (traumatic hemorrhage of cerebrum, <i>unspecified</i> , w/LOC of any duration with death due to brain injury prior to regaining consciousness, initial encounter)	
- S06.368A (traumatic hemorrhage of cerebrum, <i>unspecified</i> , w/LOC of any duration with death due to other cause prior to regaining consciousness, initial encounter)	
- S06.369A (traumatic hemorrhage of cerebrum, <i>unspecified</i> , w/ LOC of unspecified duration)	[M]
<b><i>S06.37 (contusion, laceration, and hemorrhage of <u>cerebellum</u>)</i></b>	[M]
- S06.370A (contusion, laceration, and hemorrhage of <i>cerebellum</i> w/o LOC, initial encounter)	[M]
- S06.371A (contusion, laceration, and hemorrhage of <i>cerebellum</i> w/LOC of 30 mins or less, initial encounter)	
- S06.372A (contusion, laceration, and hemorrhage of <i>cerebellum</i> w/LOC of 31 to 59 mins, initial encounter)	
- S06.373A (contusion, laceration, and hemorrhage of <i>cerebellum</i> w/LOC of 1 hr to 5 hrs 59 mins, initial encounter)	
- S06.374A (contusion, laceration, and hemorrhage of <i>cerebellum</i> w/LOC of 6-24 hrs, initial encounter)	
- S06.375A (contusion, laceration, and hemorrhage of <i>cerebellum</i> w/LOC > 24hrs with return to pre-existing conscious level, initial encounter)	[S]
- S06.376A (contusion, laceration, and hemorrhage of <i>cerebellum</i> w/LOC <24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)	
- S06.377A (contusion, laceration, and hemorrhage of <i>cerebellum</i> w/LOC of any duration w/death due to brain injury prior to regaining consciousness, initial encounter)	
- S06.378A (contusion, laceration, and hemorrhage of <i>cerebellum</i> w/LOC of any duration w/ death due to other cause prior to regaining consciousness, initial encounter)	
- S06.379A (contusion, laceration, and hemorrhage of <i>cerebellum</i> w/LOC of unspecified duration, initial encounter)	[M]
<b><i>S06.38 (contusion, laceration, and hemorrhage of <u>brainstem</u>)</i></b>	[M]

- S06.380A (contusion, laceration, and hemorrhage of <i>brainstem</i> w/o LOC, initial encounter)	[M]
- S06.381A (contusion, laceration, and hemorrhage of <i>brainstem</i> w/LOC of 30 minutes or less, initial encounter)	
- S06.382A (contusion, laceration, and hemorrhage of <i>brainstem</i> w/LOC of 31 to 59 mins, initial encounter)	
- S06.383A (contusion, laceration, and hemorrhage of <i>brainstem</i> w/LOC of 1 hr to 5 hrs 59 mins, initial encounter)	
- S06.384A (contusion, laceration, and hemorrhage of <i>brainstem</i> w/LOC of 6-24 hrs, initial encounter)	
- S06.385A (contusion, laceration, and hemorrhage of <i>brainstem</i> w/LOC > 24hrs with return to pre-existing conscious level, initial encounter)	[S]
- S06.386A (contusion, laceration, and hemorrhage of <i>brainstem</i> w/LOC > 24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)	
- S06.387A (contusion, laceration, and hemorrhage of <i>brainstem</i> w/LOC of any duration w/ death due to brain injury prior to regaining consciousness, initial encounter)	
- S06.388A (contusion, laceration, and hemorrhage of <i>brainstem</i> with loss of consciousness of any duration w/death due to other cause prior to regaining consciousness, initial encounter)	
- S06.389A (contusion, laceration, and hemorrhage of <i>brainstem</i> w/LOC of unspecified duration, initial encounter)	[M]
<b>S06.4 Epidural Hemorrhage</b>	
<b>S06.4X (epidural hemorrhage)</b>	[M]
- S06.4X0A (epidural hemorrhage w/o LOC, initial encounter)	[M]
- S06.4X1A (epidural hemorrhage w/LOC of 30 mins or less, initial encounter)	
- S06.4X2A (epidural hemorrhage w/LOC of 31-59 minutes, initial encounter)	
- S06.4X3A (epidural hemorrhage w/LOC of 1 hr to 5 hrs 59 mins, initial encounter)	
- S06.4X4A, or (epidural hemorrhage w/LOC of 6-24 hrs, initial encounter)	
- S06.4X5A (epidural hemorrhage w/LOC >24 hrs with return to pre-existing conscious level, initial encounter)	[S]
- S06.4X6A (epidural hemorrhage w/LOC >24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)	
- S06.4X7A (epidural hemorrhage w/LOC of any duration with death due to brain injury prior to regaining consciousness, initial encounter)	
- S06.4X8A (epidural hemorrhage w/LOC of any duration with death due to other causes prior to regaining consciousness, initial encounter)	
- S06.4X9A (epidural hemorrhage w/LOC of unspecified duration, initial encounter)	[M]
<b>S06.5 Traumatic Subdural Hemorrhage</b>	

	<b><i>S06.5X (traumatic subdural hemorrhage)</i></b>	[M]
	- S06.5X0A (traumatic subdural hemorrhage w/o LOC, initial encounter)	[M]
	- S06.5X1A (traumatic subdural hemorrhage w/LOC of 30 mins or less, initial encounter)	
	- S06.5X2A (traumatic subdural hemorrhage with LOC of 31-59 mins, initial encounter)	
	- S06.5X3A (traumatic subdural hemorrhage w/LOC of 1 hr to 5 hrs 59 mins, initial encounter)	
	- S06.5X4A (traumatic subdural hemorrhage with LOC of 6-24 hrs, initial encounter)	
	- S06.5X5A (traumatic subdural hemorrhage w/LOC >24 hrs with return to pre-existing conscious level, initial encounter)	[S]
	- S06.5X6A (traumatic subdural hemorrhage w/ LOC >24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)	
	- S06.5X7A (traumatic subdural hemorrhage w/LOC of any duration with death due to brain injury before regaining consciousness, initial encounter)	
	- S06.5X8A (traumatic subdural hemorrhage w/LOC of any duration with death due to other causes before regaining consciousness, initial encounter)	
	- S06.5X9A (traumatic subdural hemorrhage w/LOC of unspecified duration, initial encounter)	[M]
	<b>S06.6 Traumatic Subarachnoid Hemorrhage</b>	
	<b><i>S06.6X (traumatic subarachnoid hemorrhage)</i></b>	[M]
	- S06.6X0A (traumatic subarachnoid hemorrhage w/o LOC, initial encounter)	[M]
	- S06.6X1A (traumatic subarachnoid hemorrhage w/LOC of 30 mins or less, initial encounter)	
	- S06.6X2A (traumatic subarachnoid hemorrhage w/LOC of 31-59 mins, initial encounter)	
	- S06.6X3A (traumatic subarachnoid hemorrhage w/ LOC of 1 hr to 5 hrs 59 mins, initial encounter)	
	- S06.6X4A (traumatic subarachnoid hemorrhage w/LOC of 6-24 hrs, initial encounter)	
	- S06.6X5A (traumatic subarachnoid hemorrhage w/LOC > 24hrs with return to pre-existing conscious level, initial encounter)	[S]
	- S06.6X6A (traumatic subarachnoid hemorrhage w/LOC > 24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)	
	- S06.6X7A (traumatic subarachnoid hemorrhage w/LOC of any duration with death due to brain injury prior to regaining consciousness, initial encounter)	
	- S06.6X8A (traumatic subarachnoid hemorrhage w/LOC of any duration with death due to other causes before regaining consciousness, initial encounter)	
	- S06.6X9A (traumatic subarachnoid hemorrhage w/LOC of unspecified duration, initial encounter)	[M]



<b>S06.8 Other Specified Intracranial Injuries [S06.89- only]</b>		
<b>S06.89 (other specified intracranial injury)</b>		[M]
- S06.890A (other specified intracranial injury w/o LOC, initial encounter)		[M]
- S06.891A (other specified intracranial injury w/LOC of 30 mins or less, initial encounter)		
- S06.892A (other specified intracranial injury w/LOC of 31-59 mins, initial encounter)		
- S06.893A (other specified intracranial injury w/LOC of 1 hr to 5 hrs 59 mins, initial encounter)		
- S06.894A (other specified intracranial injury w/LOC of 6 -24 hrs, initial encounter)		
- S06.895A (other specified intracranial injury w/LOC > 24 hrs with return to pre-existing conscious level, initial encounter)		[S]
- S06.896A (other specified intracranial injury w/LOC >24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)		
- S06.897A (other specified intracranial injury w/LOC of any duration with death due to brain injury prior to regaining consciousness, initial encounter)		
- S06.898A (other specified intracranial injury w/LOC of any duration with death due to other cause prior to regaining consciousness, initial encounter)		
- S06.899A (other specified intracranial injury w/LOC of <i>unspecified</i> duration, initial encounter)		[M]
<b>S06.9 Unspecified Intracranial Injury</b>		
<b>S06.9X (unspecified intracranial injury)</b>		[M]
- S06.9X0A (unspecified intracranial injury w/o LOC, initial encounter)		[M]
- S06.9X1A (unspecified intracranial injury w/LOC of 30 mins or less, initial encounter)		
- S06.9X2A (unspecified intracranial injury w/LOC of 31-59 mins, initial encounter)		
- S06.9X3A (unspecified intracranial injury w/LOC of 1 hr to 5 hrs 59 min, <i>initial encounter</i> )		
- S06.9X4A (unspecified intracranial injury w/ LOC of 6 -24 hrs, initial encounter)		
- S06.9X5A (unspecified intracranial injury w/LOC > 24 hrs with return to pre-existing conscious level, initial encounter)		[S]
- S06.9X6A (unspecified intracranial injury w/LOC >24 hrs w/o return to pre-existing conscious level with patient surviving, initial encounter)		
- S06.9X7A (unspecified intracranial injury w/LOC of any duration with death due to brain injury prior to regaining consciousness, initial encounter)		
- S06.9X8A (unspecified intracranial injury w/LOC of any duration with death due to other cause prior to regaining consciousness, initial encounter)		
- S06.9X9A (unspecified intracranial injury w/LOC of unspecified duration, <i>initial encounter</i> )		[M]



	- S06.9X9S (unspecified intracranial injury with LOC of unspecified duration, <i>sequela</i> )	[M]
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Condition	ICD-10-CM Codes	Severity
Traumatic Brain Injury ( <i>Skull Fractures</i> )	<b>Skull Fractures</b>	
	<b>S02.0 Fracture of Vault of Skull</b>	
	S02.0XXA (fracture of <i>vault</i> of skull, initial encounter for <i>closed</i> fracture)	[M]
	S02.0XXB (fracture of <i>vault</i> of skull, initial encounter for <i>open</i> fracture)	[P]
	<b>S02.1 Fracture of Base of Skull</b>	
	S02.10 (unspecified fracture of <i>base</i> of skull)	[M]
	- S02.10XA (unspecified fracture of <i>base</i> of skull, initial encounter for <i>closed</i> fracture)	[M]
	- S02.10XB (unspecified fracture of <i>base</i> of skull, initial encounter for <i>open</i> fracture)	[P]
	<b>S02.11 Fracture of Occiput</b>	
	<b>S02.110 (type I occipital condyle fracture)</b>	[m]
	- S02.110A (type I occipital condyle fracture, initial encounter for <i>closed</i> fracture)	[m]
	- S02.110B (type I occipital condyle fracture, initial encounter for <i>open</i> fracture)	[P]
	<b>S02.111 (type II occipital condyle fracture)</b>	[M]
	- S02.111A (type II occipital condyle fracture, initial encounter for <i>closed</i> fracture)	[M]
	- S02.111B (type II occipital condyle fracture, initial encounter for <i>open</i> fracture)	[P]
	<b>S02.112 (type III occipital condyle fracture)</b>	[m]
	- S02.112A (type III occipital condyle fracture, initial encounter for <i>closed</i> fracture)	[m]
	- S02.112B (type III occipital condyle fracture, initial encounter for <i>open</i> fracture)	[P]
	<b>S02.113 (unspecified occipital condyle fracture)</b>	[m]
	- S02.113A (unspecified occipital condyle fracture, initial encounter for <i>closed</i> fracture)	[m]
	- S02.113B (unspecified occipital condyle fracture, initial encounter for <i>open</i> fracture)	[P]
	<b>S02.118 (other fracture of occiput)</b>	[M]
	- S02.118A (other fracture of occiput, initial encounter for <i>closed</i> fracture)	[M]
	- S02.118B (other fracture of occiput, initial encounter for <i>open</i> fracture)	[P]
	<b>S02.119 (unspecified fracture of occiput)</b>	[M]
	- S02.119A (unspecified fracture of occiput, initial encounter for <i>closed</i> fracture)	[M]



	- S02.119B (unspecified fracture of occiput, initial encounter for <i>open</i> fracture)	[P]
	<b>S02.19 (other fracture of base of skull)</b>	[M]
	- S02.19XA other fracture of base of skull, initial encounter for <i>closed</i> fracture)	[M]
	- S02.19XB (other fracture for base of skull, initial encounter for <i>open</i> fracture)	[P]
	<b>S02.8 Fracture of Other Specified Skull and Facial Bones</b>	
	- S02.8XXA (fracture of other specified <i>skull and facial bones</i> , initial encounter for <i>closed</i> fracture)	[m]
	- S02.8XXB (fracture of other specified <i>skull and facial bones</i> , initial encounter for <i>open</i> fracture)	[P]
	<b>S02.9 Fracture of Unspecified Skull and Facial Bones</b>	
	S02.91 (unspecified fracture of <i>skull</i> )	[M]
	- S02.91XA (unspecified fracture of <i>skull</i> , initial encounter for <i>closed</i> fracture)	[M]
	- S02.91XB (unspecified fracture of <i>skull</i> , initial encounter for <i>open</i> fracture)	[P]

Condition	ICD-10-CM Codes	Severity
Traumatic Brain Injury  (Other)	<b>Crush Injury</b>	
	S07.1 (crushing injury of skull)	[M]
	- S07.1XXA (crushing injury of skull, initial encounter	
	<b>Other Head Injuries</b>	
	<i>Translated codes S09.8 (other specified injuries of head) and S09.90 (unspecified injury of the head) lack specificity and are not included. See Comments below.</i>	--

#### Extender Codes for use with ICD10

Condition	ICD-10-CM Codes	Severity
Traumatic Brain Injury	Z87.820 (personal history of traumatic brain injury)	[m]

#### DOD Unique Codes (DODUC) for use with ICD10

Condition	DOD Code	Short Narrative	Long Narrative	Severity
Traumatic Brain Injury	DOD0101	PERS HX, TBI, LVL-UKN	Personal history of traumatic brain injury (TBI), highest level of severity unknown	[m]
	DOD0102	PERS HX, TBI, LVL-MILD	Personal history of traumatic brain injury (TBI), highest level of severity mild (Glasgow coma scale 13-15), LOC <1hr, post trauma amnesia < 24hr	[m]
	DOD0103	PERS HX, TBI,	Personal history of traumatic brain injury	[M]



		LVL-MODERATE	(TBI), highest level of severity moderate (Glasgow coma scale 9-12), LOC 1-24 hrs, post trauma amnesia 2-7 days  <i>(continued on next page)</i>	
	DOD0104	PERS HX, TBI, LVL-SEVERE	Personal history of traumatic brain injury (TBI), highest level of severity severe (Glasgow coma scale 3-8), LOC > 24hrs, post trauma amnesia >7 days	[S]
	DOD0105	PERS HX, TBI, LVL-PENETRATNG	Personal history of traumatic brain injury (TBI), penetrating intracranial wound (no level of severity assigned)	[P]

### ICD-9-CM Codes

The following ICD9 codes and are included in the case definition:

Condition	ICD-9-CM Codes	Severity
Traumatic Brain Injury <i>(Closed Injuries)</i>	<b>Other Personality and Behavioral Disorders due to Known Physiological Condition</b>	
	310.2 (post-concussion syndrome)	[m]
	<b>850 Concussion</b>	
	850.0 (concussion with no LOC)	[m]
	850.1 (concussion with brief LOC)	[m]
	- 850.11 (concussion with LOC of 30 mins or less)	[m]
	- 850.12 (concussion with LOC from 31-59 mins)	[M]
	850.2 (concussion with moderate LOC)	[M]
	850.3 (concussion with prolonged LOC and return to pre-existing conscious level)	[S]
	850.4 (concussion with prolonged LOC, w/o return to pre-existing conscious level)	[S]
	850.5 (concussion with LOC of unspecified duration)	[m]
	850.9 (concussion w/o mention of open intracranial wound, with concussion unspecified)	[m]
	<b>851.[0,2,4,6,8] Cerebral Laceration and Contusion Without Mention of Open Intracranial Wound</b>	
	<b>851.0 (cortex [cerebral] contusion w/o mention of open intracranial wound)</b>	[U]
	- 851.00 (cortex [cerebral] contusion w/o mention of open intracranial wound, unspecified state of consciousness)	[M]
	- 851.01 (cortex [cerebral] contusion w/o mention of open intracranial wound, with no LOC)	[M]
	- 851.02 (cortex [cerebral] contusion w/o mention of open intracranial wound, with brief [< 1 hr] LOC)	[M]



- 851.03 (cortex [cerebral] <i>contusion</i> w/o mention of open intracranial wound, with moderate [1-24 hrs] LOC)	[M]
- 851.04 (cortex [cerebral] <i>contusion</i> w/o mention of open intracranial wound, with prolonged [>24 hrs] LOC and return to pre-existing conscious level)	[S]
- 851.05 (cortex [cerebral] <i>contusion</i> w/o mention of open intracranial wound, with prolonged [>24 hrs] LOC w/o return to pre-existing conscious level)	[S]
- 851.06 (cortex [cerebral] <i>contusion</i> w/o mention of open intracranial wound, w/LOC of unspecified duration, initial encounter)	[M]
- 851.09 (cortex [cerebral] <i>contusion</i> w/o mention of open intracranial wound, with concussion, <i>unspecified</i> )	[M]
<b>851.2 (cortex [cerebral] <i>laceration</i> w/o mention of open intracranial wound)</b>	[U]
- 851.20 (cortex [cerebral] <i>laceration</i> w/o mention of open intracranial wound, <i>unspecified</i> state of consciousness)	[M]
- 851.21 (cortex [cerebral] <i>laceration</i> w/o mention of open intracranial wound, w/o LOC)	[M]
- 851.22 (cortex [cerebral] <i>laceration</i> w/o mention of open intracranial wound, with brief [ < 1 hr] LOC)	[M]
- 851.23 (cortex [cerebral] <i>laceration</i> w/o mention of open intracranial wound, with moderate [ 1-24 hrs] LOC)	[M]
- 851.24 (cortex [cerebral] <i>laceration</i> w/o mention of open intracranial wound, with prolonged [>24 hrs] LOC and return to pre-existing conscious level)	[S]
- 851.25 (cortex [cerebral] <i>laceration</i> w/o mention of open intracranial wound, with prolonged [> 24 hrs] LOC w/o return to pre-existing conscious level)	[S]
- 851.26 (cortex [cerebral] <i>laceration</i> w/o mention of open intracranial wound, w/ LOC of unspecified duration)	[M]
- 851.29 (cortex [cerebral] <i>laceration</i> w/o mention of open intracranial wound, with concussion <i>unspecified</i> )	[M]
<b>851.4 (cerebellar or brain stem <u>contusion</u> w/o mention of open intracranial wound)</b>	[U]
- 851.40 (cerebellar or brain stem <i>contusion</i> w/o mention of open intracranial wound, <i>unspecified</i> state of consciousness)	[M]
- 851.41 (cerebellar or brain stem <i>contusion</i> w/o mention of open intracranial wound, w/o LOC)	[M]
- 851.42 (cerebellar or brain stem <i>contusion</i> w/o mention of open intracranial wound, with brief, [<1 hr] LOC)	[M]
- 851.43 (cerebellar or brain stem <i>contusion</i> w/o mention of open intracranial wound, with moderate [1-24 hrs] LOC)	[M]
- 851.44 (cerebellar or brain stem <i>contusion</i> w/o mention of open intracranial wound, with prolonged [>24 hrs] LOC)	[S]
- 851.45 (cerebellar or brain stem <i>contusion</i> w/o mention of open intracranial wound, with prolonged [> 24 hrs] LOC, w/o return to pre-existing conscious level)	[S]
- 851.46 (cerebellar or brain stem <i>contusion</i> w/o mention of open intracranial wound, with LOC of <i>unspecified</i> duration)	[M]

- 851.49 (cerebellar or brain stem <i>contusion</i> without mention of open intracranial wound, with concussion, <i>unspecified</i> )	[M]
<b>851.6 (cerebellar or brain stem <u>laceration</u> w/o mention of open intracranial wound)</b>	[U]
- 851.60 (cerebellar or brain stem <i>laceration</i> w/o mention of open intracranial wound, <i>unspecified</i> state of consciousness)	[M]
- 851.61 (cerebellar or brain stem <i>laceration</i> w/o mention of open intracranial wound, w/o LOC)	[M]
- 851.62 (cerebellar or brain stem <i>laceration</i> w/o mention of open intracranial wound, with brief, [ $<1$ hr] LOC)	[M]
- 851.63 (cerebellar or brain stem <i>laceration</i> w/o mention of open intracranial wound, with moderate [1-24 hrs] LOC)	[M]
- 851.64 (cerebellar or brain stem <i>laceration</i> w/o mention of open intracranial wound, with prolonged [ $>24$ hrs] LOC)	[S]
- 851.65 (cerebellar or brain stem <i>laceration</i> w/o mention of open intracranial wound, with prolonged [ $> 24$ hrs] LOC, w/o return to pre-existing conscious level)	[S]
- 851.66 (cerebellar or brain stem <i>laceration</i> w/o mention of open intracranial wound, with LOC of <i>unspecified</i> duration)	[M]
- 851.69 (cerebellar or brain stem <i>laceration</i> without mention of open intracranial wound, with concussion, <i>unspecified</i> )	[M]
<b>851.8 (other and unspecified cerebral laceration and contusion, w/o mention of open intracranial wound)</b>	[U]
- 851.80 (other and unspecified cerebral laceration and contusion, w/o mention of open intracranial wound, <i>unspecified</i> state of consciousness)	[M]
- 851.81 (other and unspecified cerebral laceration and contusion, w/o mention of open intracranial wound, with no LOC)	[M]
- 851.82 (other and unspecified cerebral laceration and contusion, w/o mention of open intracranial wound, with brief [ $< 1$ hr] LOC)	[M]
- 851.83 (other and unspecified cerebral laceration and contusion, w/o mention of open intracranial wound, with brief [ $< 1$ hr] LOC)	[M]
- 851.84 (other and unspecified cerebral laceration and contusion, w/o mention of open intracranial wound, with prolonged [ $>24$ hrs] LOC and return to pre-existing conscious level)	[S]
- 851.85 (other and unspecified cerebral laceration and contusion, w/o mention of open intracranial wound, with prolonged [ $>24$ hrs] LOC w/o return to pre-existing conscious level)	[S]
- 851.86 (other and unspecified cerebral laceration and contusion, w/o mention of open intracranial wound, w/LOC of <i>unspecified</i> duration)	[M]
- 851.89 (other and unspecified cerebral laceration and contusion, w/o mention of open intracranial wound, with concussion <i>unspecified</i> )	[M]
<b>852.[0,2,4] Subarachnoid Subdural and Extradural Hemorrhage Following Injury Without Mention of Open Intracranial Wound</b>	
<b>852.0 (subarchnoid hemorrhage following injury w/o mention of open intracranial wound)</b>	[U]

- 852.00 (subarachnoid hemorrhage following injury w/o mention of open intracranial wound, unspecified state of consciousness)	[M]
- 852.01 (subarachnoid hemorrhage following injury w/o mention of open intracranial wound, w/o LOC)	[M]
- 852.02 (subarachnoid hemorrhage following injury, w/o mention of open intracranial wound, with brief [ $< 1$ hr] LOC)	[M]
- 852.03 (subarachnoid hemorrhage following injury, w/o mention of open intracranial wound, with moderate [1-24 hrs] LOC)	[M]
- 852.04 (subarachnoid hemorrhage following injury, w/o mention of open intracranial wound, with prolonged [ $>24$ hrs] LOC and return to pre-existing conscious level)	[S]
- 852.05 (subarachnoid hemorrhage following injury, w/o mention of open intracranial wound, with prolonged [ $>24$ hrs] LOC w/o return to pre-existing conscious level)	[S]
- 852.06 (subarachnoid hemorrhage following injury, without mention of open intracranial wound, w/LOC of unspecified duration)	[M]
- 852.09 (subdural hemorrhage following injury w/o mention of open intracranial wound, with concussion unspecified)	[M]
<b>852.2 (subdural hemorrhage following injury w/o mention of open intracranial wound)</b>	[U]
- 852.20 (subdural hemorrhage following injury w/o mention of open intracranial wound, <i>unspecified</i> state of consciousness)	[M]
- 852.21 (subdural hemorrhage following injury w/o mention of open intracranial wound, w/o LOC)	[M]
- 852.22 (subdural hemorrhage following injury, w/o mention of open intracranial wound, with brief [ $< 1$ hr] LOC)	[M]
- 852.23 (subdural hemorrhage following injury, w/o mention of open intracranial wound, with moderate [1-24 hrs] LOC)	[M]
- 852.24 (subdural hemorrhage following injury, w/o mention of open intracranial wound, with prolonged [ $>24$ hrs] LOC and return to pre-existing conscious level)	[S]
- 852.25 (subdural hemorrhage following injury, w/o mention of open intracranial wound, with prolonged [ $>24$ hrs] LOC w/o return to pre-existing conscious level)	[S]
- 852.26 (extradural hemorrhage following injury, without mention of open intracranial wound, with LOC of <i>unspecified</i> duration)	[M]
- 852.29 (subdural hemorrhage following injury w/o mention of open intracranial wound, with concussion <i>unspecified</i> )	[M]
<b>852.4 (extradural hemorrhage following injury w/o mention of open intracranial wound)</b>	[U]
- 852.40 (extradural hemorrhage following injury w/o mention of open intracranial wound, with <i>unspecified</i> state of consciousness)	[M]
- 852.41 (extradural hemorrhage following injury w/o mention of open intracranial wound, with no LOC)	[M]

- 852.42 (extradural hemorrhage following injury, w/o mention of open intracranial wound, with brief [ < 1 hr] LOC)	[M]
- 852.43 (extradural hemorrhage following injury, w/o mention of open intracranial wound, with moderate [ 1-24 hrs] LOC)	[M]
- 852.44 (extradural hemorrhage following injury, w/o mention of open intracranial wound, with prolonged [>24 hrs] LOC and return to pre-existing conscious level)	[S]
- 852.45 (extradural hemorrhage following injury, w/o mention of open intracranial wound, with prolonged [>24 hrs] LOC w/o return to pre-existing conscious level)	[S]
- 852.46 (extradural hemorrhage following injury, w/o mention of open intracranial wound, w/LOC of unspecified duration)	[M]
- 852.49 (extradural hemorrhage following injury w/o mention of open intracranial wound, with concussion unspecified)	[M]
<b>853 Other and Unspecified Intracranial Hemorrhage Following Injury</b>	
<b>853.0 (other and unspecified intracranial hemorrhage following injury w/o mention of open intracranial wound)</b>	[U]
- 853.00 (other and unspecified intracranial hemorrhage following injury w/o mention of open intracranial wound, <i>unspecified</i> state of consciousness)	[M]
- 853.01 (other and unspecified intracranial hemorrhage following injury w/o mention of open intracranial wound, w/o LOC)	[M]
- 853.02 (other and unspecified intracranial hemorrhage following injury, w/o mention of open intracranial wound, with brief [ < 1 hr] LOC)	[M]
- 853.03 (other and unspecified intracranial hemorrhage following injury, w/o mention of open intracranial wound, with moderate [1-24 hrs] LOC)	[M]
- 853.04 (other and unspecified intracranial hemorrhage following injury, w/o mention of open intracranial wound, with prolonged [>24 hrs] LOC and return to pre-existing conscious level)	[S]
- 853.05 (other and unspecified intracranial hemorrhage following injury, w/o mention of open intracranial wound, with prolonged [>24 hrs] LOC w/o return to pre-existing conscious level)	[S]
- 853.06 (other and unspecified intracranial hemorrhage following injury w/o mention of open intracranial wound, w/LOC of <i>unspecified</i> duration)	[M]
- 853.09 (other and unspecified intracranial hemorrhage following injury w/o mention of open intracranial wound, w/concussion <i>unspecified</i> )	[M]
<b>854 Intracranial Injury of Other and Unspecified Nature</b>	
<b>854.0 (intracranial injury of other and unspecified nature w/o mention of open intracranial wound)</b>	[U]
- 854.00 (intracranial injury of other and unspecified nature without mention of open intracranial wound, <i>unspecified</i> state of consciousness)	[M]
- 854.01 (intracranial injury of other and unspecified nature w/o mention of open intracranial wound, w/o LOC)	[M]
- 854.02 (intracranial injury of other and unspecified nature w/o mention of open intracranial wound, with brief [ < 1 hr] LOC)	[M]



	- 854.03 (intracranial injury of other and unspecified nature w/o mention of open intracranial wound, with moderate [ 1-24 hrs] LOC)	[M]
	- 854.04 (intracranial injury of other and unspecified nature w/o mention of open intracranial wound, with prolonged [>24 hrs] LOC and return to pre-existing conscious level)	[S]
	- 854.05 (intracranial injury of other and unspecified nature w/o mention of open intracranial wound, with prolonged [>24 hrs] LOC w/o return to pre-existing conscious level)	[S]
	- 854.06 (intracranial injury of other and unspecified nature w/o mention of open intracranial wound, with LOC of unspecified duration)	[M]
	- 854.09 (intracranial injury of other and unspecified nature w/o mention of open intracranial wound, with concussion, <i>unspecified</i> )	[M]

Condition	ICD-10-CM Codes	Severity
Traumatic Brain Injury  ( <i>Open Injuries</i> )	<b>851.[1,3,5,7,9] Cerebral Laceration and Contusion With Open Intracranial Wound</b>	
	<b>851.1 (cortex [<i>cerebral</i>] <u>contusion</u> with open intracranial wound...)</b>	[U]
	- 851.10 ( <i>unspecified</i> state of consciousness)	[P]
	- 851.11 ( <i>with</i> no LOC)	
	- 851.12 ( <i>with</i> brief [<1hr] LOC)	
	- 851.13 ( <i>with</i> moderate [1-24 hrs] LOC)	
	- 851.14 ( <i>with</i> prolonged [>24 hrs] LOC)	
	- 851.15 ( <i>with</i> prolonged [>24 hrs] LOC, w/o return to pre-existing conscious level)	
	- 851.16 ( <i>with</i> LOC of <i>unspecified</i> duration)	
	- 851.19 ( <i>with</i> concussion, <i>unspecified</i> )	
	<b>851.3 (cortex [<i>cerebral</i>] <u>laceration</u> with open intracranial wound</b>	[U]
	- 851.30 ( <i>unspecified</i> state of consciousness)	[P]
	- 851.31 ( <i>with</i> no LOC)	
	- 851.32 ( <i>with</i> brief [<1hr] LOC)	
	- 851.33 ( <i>with</i> moderate [1-24 hrs] LOC)	
	- 851.34 ( <i>with</i> prolonged [>24 hrs] LOC)	
	- 851.35 ( <i>with</i> prolonged [>24 hrs] LOC, w/o return to pre-existing conscious level)	
	- 851.36 ( <i>with</i> LOC of <i>unspecified</i> duration)	
	- 851.39 ( <i>with</i> concussion, <i>unspecified</i> )	
	<b>851.5 (cerebellar or brain stem <u>contusion</u> with open intracranial wound...)</b>	[U]
- 851.50 ( <i>unspecified</i> state of consciousness)	[P]	



- 851.51 ( <i>with no LOC</i> )	
- 851.52 ( <i>with brief [<math>&lt;1</math>hr] LOC</i> )	
- 851.53 ( <i>with moderate [1-24 hrs] LOC</i> )	
- 851.54 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC</i> )	
- 851.55 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC, w/o return to pre-existing conscious level</i> )	
- 851.56 ( <i>with LOC of unspecified duration</i> )	
- 851.59 ( <i>with concussion, unspecified</i> )	
<b>851.7 (<i>cerebellar or brain stem laceration with open intracranial wound...</i>)</b>	[U]
- 851.70 ( <i>unspecified state of consciousness</i> )	[P]
- 851.71 ( <i>with no LOC</i> )	
- 851.72 ( <i>with brief [<math>&lt;1</math>hr] LOC</i> )	
- 851.73 ( <i>with moderate [1-24 hrs] LOC</i> )	
- 851.74 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC</i> )	
- 851.75 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC, w/o return to pre-existing conscious level</i> )	
- 851.76 ( <i>with LOC of unspecified duration</i> )	
- 851.79 ( <i>with concussion, unspecified</i> )	
<b>851.9 (<i>other and unspecified cerebral laceration and contusion, with open intracranial wound...</i>)</b>	[U]
- 851.90 ( <i>unspecified state of consciousness</i> )	[P]
- 851.91 ( <i>with no LOC</i> )	
- 851.92 ( <i>with brief [<math>&lt;1</math>hr] LOC</i> )	
- 851.93 ( <i>with moderate [1-24 hrs] LOC</i> )	
- 851.94 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC</i> )	
- 851.95 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC, w/o return to pre-existing conscious level</i> )	
- 851.96 ( <i>with LOC of unspecified duration</i> )	
- 851.99 ( <i>with concussion, unspecified</i> )	
<b>852.[1,3,5] Subarachnoid Subdural and Extradural Hemorrhage Following Injury With Open Intracranial Wound</b>	
<b>852.1 (<i>subarachnoid hemorrhage following injury with open intracranial wound...</i>)</b>	[U]
- 852.10 ( <i>unspecified state of consciousness</i> )	[P]
- 852.11 ( <i>with no LOC</i> )	
- 852.12 ( <i>with brief [<math>&lt;1</math>hr] LOC</i> )	
- 852.13 ( <i>with moderate [1-24 hrs] LOC</i> )	



- 852.14 ( <i>with</i> prolonged [ $>24$ hrs] LOC)	
- 852.15 ( <i>with</i> prolonged [ $>24$ hrs] LOC, w/o return to pre-existing conscious level)	
- 852.16 ( <i>with</i> LOC of <i>unspecified</i> duration)	
- 852.19 ( <i>with</i> concussion, <i>unspecified</i> )	
<b>852.3 (subdural hemorrhage following injury with open intracranial wound...)</b>	[U]
- 852.30 ( <i>unspecified</i> state of consciousness)	[P]
- 852.31 ( <i>with</i> no LOC)	
- 852.32 ( <i>with</i> brief [ $<1$ hr] LOC)	
- 852.33 ( <i>with</i> moderate [1-24 hrs] LOC)	
- 852.34 ( <i>with</i> prolonged [ $>24$ hrs] LOC)	
- 852.35 ( <i>with</i> prolonged [ $>24$ hrs] LOC, w/o return to pre-existing conscious level)	
- 852.36 ( <i>with</i> LOC of <i>unspecified</i> duration)	
- 852.39 ( <i>with</i> concussion, <i>unspecified</i> )	
<b>852.5 (extradural hemorrhage following injury with open intracranial wound...)</b>	[U]
- 852.50 ( <i>unspecified</i> state of consciousness)	[P]
- 852.51 ( <i>with</i> no LOC)	
- 852.52 ( <i>with</i> brief [ $<1$ hr] LOC)	
- 852.53 ( <i>with</i> moderate [1-24 hrs] LOC)	
- 852.54 ( <i>with</i> prolonged [ $>24$ hrs] LOC)	
- 852.55 ( <i>with</i> prolonged [ $>24$ hrs] LOC, w/o return to pre-existing conscious level)	
- 852.56 ( <i>with</i> LOC of <i>unspecified</i> duration)	
- 852.59 ( <i>with</i> concussion, <i>unspecified</i> )	
<b>853.1 Other and Unspecified Intracranial Hemorrhage With Open Intracranial Wound</b>	
<b>853.1 (other and unspecified intracranial hemorrhage with open intracranial wound...)</b>	[U]
- 853.10 ( <i>unspecified</i> state of consciousness)	[P]
- 853.11 ( <i>with</i> no LOC)	
- 853.12 ( <i>with</i> brief [ $<1$ hr] LOC)	
- 853.13 ( <i>with</i> moderate [1-24 hrs] LOC)	
- 853.14 ( <i>with</i> prolonged [ $>24$ hrs] LOC)	
- 853.15 ( <i>with</i> prolonged [ $>24$ hrs] LOC, w/o return to pre-existing conscious level)	
- 853.16 ( <i>with</i> LOC of <i>unspecified</i> duration)	
- 853.19 ( <i>with</i> concussion, <i>unspecified</i> )	



<b>854.1 Intracranial Injury of Other and Unspecified Nature With Open Intracranial Wound</b>	
<i>854.1 (intracranial injury of other and unspecified nature with open intracranial wound...)</i>	[U]
- 854.10 ( <i>unspecified</i> state of consciousness)	[P]
- 854.11 ( <i>with</i> no LOC)	
- 854.12 ( <i>with</i> brief [ $<1$ hr] LOC)	
- 854.13 ( <i>with</i> brief [ $<1$ hr] LOC)	
- 854.14 ( <i>with</i> moderate [1-24 hrs] LOC)	
- 854.15 ( <i>with</i> prolonged [ $>24$ hrs] LOC)	
- 854.16 ( <i>with</i> LOC of <i>unspecified</i> duration)	
- 854.19 ( <i>with</i> concussion, <i>unspecified</i> )	

<b>Condition</b>	<b>ICD-9-CM Codes</b>	<b>Severity</b>
Traumatic Brain Injury  ( <i>Skull Fractures</i> )	<b>Skull Fractures</b>	
	<b>800 Fracture of Vault of Skull</b>	
	<i>800.0 (closed fracture of vault of skull without mention of intracranial injury...)</i>	[U]
	- 800.00 ( <i>unspecified</i> state of consciousness)	[M]
	- 800.01 ( <i>with</i> no LOC)	[M]
	- 800.02 ( <i>with</i> brief [ $<1$ hr] LOC)	[M]
	- 800.03 ( <i>with</i> moderate [1-24 hrs] LOC)	[M]
	- 800.04 ( <i>with</i> prolonged [ $>24$ hrs] LOC)	[S]
	- 800.05 ( <i>with</i> prolonged [ $>24$ hrs] LOC, w/o return to pre-existing conscious level)	[S]
	- 800.06 ( <i>with</i> LOC of <i>unspecified</i> duration)	[M]
	- 800.09 ( <i>with</i> concussion, <i>unspecified</i> )	[M]
	<i>800.1 (closed fracture of vault of skull with cerebral laceration and contusion...)</i>	[U]
	- 800.10 ( <i>unspecified</i> state of consciousness)	[M]
	- 800.11 ( <i>with</i> no LOC)	[M]
	- 800.12 ( <i>with</i> brief [ $<1$ hr] LOC)	[M]
	- 800.13 ( <i>with</i> moderate [1-24 hrs] LOC)	[M]
	- 800.14 ( <i>with</i> prolonged [ $>24$ hrs] LOC)	[S]
	- 800.15 ( <i>with</i> prolonged [ $>24$ hrs] LOC, w/o return to pre-existing conscious level)	[S]
	- 800.16 ( <i>with</i> LOC of <i>unspecified</i> duration)	[M]



- 800.19 ( <i>with concussion, unspecified</i> )	[M]
<b>800.2 (closed fracture of vault of skull with subarachnoid, subdural, and extradural hemorrhage...)</b>	[U]
- 800.20 ( <i>unspecified state of consciousness</i> )	[M]
- 800.21 ( <i>with no LOC</i> )	[M]
- 800.22 ( <i>with brief [&lt;1hr] LOC</i> )	[M]
- 800.23 ( <i>with moderate [1-24 hrs] LOC</i> )	[M]
- 800.24 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	[S]
- 800.25 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	[S]
- 800.26 ( <i>with LOC of unspecified duration</i> )	[M]
- 800.29 ( <i>with concussion, unspecified</i> )	[M]
<b>800.3 (closed fracture of vault of skull with cerebral laceration and contusion...)</b>	[U]
- 800.30 ( <i>unspecified state of consciousness</i> )	[M]
- 800.31 ( <i>with no LOC</i> )	[M]
- 800.32 ( <i>with brief [&lt;1hr] LOC</i> )	[M]
- 800.33 ( <i>with moderate [1-24 hrs] LOC</i> )	[M]
- 800.34 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	[S]
- 800.35 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	[S]
- 800.36 ( <i>with LOC of unspecified duration</i> )	[M]
- 800.39 ( <i>with concussion, unspecified</i> )	[M]
<b>800.4 (closed fracture of vault of skull with intracranial injury of other and unspecified nature...)</b>	[U]
- 800.40 ( <i>unspecified state of consciousness</i> )	[M]
- 800.41 ( <i>with no LOC</i> )	[M]
- 800.42 ( <i>with brief [&lt;1hr] LOC</i> )	[M]
- 800.43 ( <i>with moderate [1-24 hrs] LOC</i> )	[M]
- 800.44 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	[S]
- 800.45 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	[S]
- 800.46 ( <i>with LOC of unspecified duration</i> )	[M]
- 800.49 ( <i>with concussion, unspecified</i> )	[M]
<b>800.5 (open fracture of vault of skull without mention of intracranial injury...)</b>	[U]
- 800.50 ( <i>unspecified state of consciousness</i> )	[P]
- 800.51 ( <i>with no LOC</i> )	

- 800.52 ( <i>with brief [&lt;1hr] LOC</i> )	
- 800.53 ( <i>with moderate [1-24 hrs] LOC</i> )	
- 800.54 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	
- 800.55 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	
- 800.46 ( <i>with LOC of unspecified duration</i> )	
- 800.59 ( <i>with concussion, unspecified</i> )	
<b>800.6 (<i>open fracture of vault of skull with cerebral laceration and contusion...</i>)</b>	[U]
- 800.60 ( <i>unspecified state of consciousness</i> )	[P]
- 800.61 ( <i>with no LOC</i> )	
- 800.62 ( <i>with brief [&lt;1hr] LOC</i> )	
- 800.63 ( <i>with moderate [1-24 hrs] LOC</i> )	
- 800.64 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	
- 800.65 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	
- 800.66 ( <i>with LOC of unspecified duration</i> )	
- 800.69 ( <i>with concussion, unspecified</i> )	
<b>800.7 (<i>open fracture of vault of skull with subarachnoid, subdural, and extradural hemorrhage...</i>)</b>	[U]
- 800.70 ( <i>unspecified state of consciousness</i> )	[P]
- 800.71 ( <i>with no LOC</i> )	
- 800.72 ( <i>with brief [&lt;1hr] LOC</i> )	
- 800.73 ( <i>with moderate [1-24 hrs] LOC</i> )	
- 800.74 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	
- 800.75 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	
- 800.76 ( <i>with LOC of unspecified duration</i> )	
- 800.79 ( <i>with concussion, unspecified</i> )	
<b>800.8 (<i>open fracture of vault of skull with other and unspecified intracranial hemorrhage...</i>)</b>	[U]
- 800.80 ( <i>unspecified state of consciousness</i> )	[P]
- 800.81 ( <i>with no LOC</i> )	
- 800.82 ( <i>with brief [&lt;1hr] LOC</i> )	
- 800.83 ( <i>with moderate [1-24 hrs] LOC</i> )	
- 800.84 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	
- 800.85 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	

- 800.86 (with LOC of unspecified duration)	
- 800.89 (with concussion, unspecified)	
<b>800.9 (open fracture of vault of skull with intracranial injury of other and unspecified nature...)</b>	[U]
- 800.90 (unspecified state of consciousness)	[P]
- 800.91 (with no LOC)	
- 800.92 (with brief [<1hr] LOC)	
- 800.93 (with moderate [1-24 hrs] LOC)	
- 800.94 (with prolonged [>24 hrs] LOC)	
- 800.95 (with prolonged [>24 hrs] LOC, w/o return to pre-existing conscious level)	
- 800.96 (with LOC of unspecified duration)	
- 800.99 (with concussion, unspecified)	
<b>801 Fracture of Base of Skull</b>	
<b>801.0 (closed fracture of base of skull without mention of intracranial injury...)</b>	[U]
- 801.00 (unspecified state of consciousness)	[M]
- 801.01 (with no LOC)	[M]
- 801.02 (with brief [<1hr] LOC)	[M]
- 801.03 (with moderate [1-24 hrs] LOC)	[M]
- 801.04 (with prolonged [>24 hrs] LOC)	[S]
- 801.05 (with prolonged [>24 hrs] LOC, w/o return to pre-existing conscious level)	[S]
- 801.06 (with LOC of unspecified duration)	[M]
- 801.09 (with concussion, unspecified)	[M]
<b>801.1 (closed fracture of base of skull; with cerebral laceration and contusion...)</b>	[U]
- 801.10 (unspecified state of consciousness)	[M]
- 801.11 (with no LOC)	[M]
- 801.12 (with brief [<1hr] LOC)	[M]
- 801.13 (with moderate [1-24 hrs] LOC)	[M]
- 801.14 (with prolonged [>24 hrs] LOC)	[S]
- 801.15 (with prolonged [>24 hrs] LOC, w/o return to pre-existing conscious level)	[S]
- 801.16 (with LOC of unspecified duration)	[M]
- 801.19 (with concussion, unspecified)	[M]
<b>801.2 (closed fracture of base of skull with subarchnoid, subdural, and extradural hemorrhage...)</b>	[U]

- 801.20 ( <i>unspecified</i> state of consciousness)	[M]
- 801.21 ( <i>with no LOC</i> )	[M]
- 801.22 ( <i>with brief [<math>&lt;1</math>hr] LOC</i> )	[M]
- 801.23 ( <i>with moderate [1-24 hrs] LOC</i> )	[M]
- 801.24 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC</i> )	[S]
- 801.25 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC, w/o return to pre-existing conscious level</i> )	[S]
- 800.26 ( <i>with LOC of unspecified duration</i> )	[M]
- 801.29 ( <i>with concussion, unspecified</i> )	[M]
<b>801.3 (closed fracture of base of skull with other and unspecified intracranial hemorrhage...)</b>	[U]
- 801.30 ( <i>unspecified</i> state of consciousness)	[M]
- 801.31 ( <i>with no LOC</i> )	[M]
- 801.32 ( <i>with brief [<math>&lt;1</math>hr] LOC</i> )	[M]
- 801.33 ( <i>with moderate [1-24 hrs] LOC</i> )	[M]
- 801.34 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC</i> )	[S]
- 801.35 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC, w/o return to pre-existing conscious level</i> )	[S]
- 801.36 ( <i>with LOC of unspecified duration</i> )	[M]
- 801.39 ( <i>with concussion, unspecified</i> )	[M]
<b>801.4 (closed fracture of base of skull with intracranial injury of other and unspecified nature)</b>	[U]
- 801.40 ( <i>unspecified</i> state of consciousness)	[M]
- 801.41 ( <i>with no LOC</i> )	[M]
- 801.42 ( <i>with brief [<math>&lt;1</math>hr] LOC</i> )	[M]
- 801.43 ( <i>with moderate [1-24 hrs] LOC</i> )	[M]
- 801.44 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC</i> )	[S]
- 801.45 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC, w/o return to pre-existing conscious level</i> )	[S]
- 801.46 ( <i>with LOC of unspecified duration</i> )	[M]
- 801.49 ( <i>with concussion, unspecified</i> )	[M]
<b>801.5 (open fracture of base of skull without mention of intracranial injury)</b>	[U]
- 801.50 ( <i>unspecified</i> state of consciousness)	[P]
- 801.51 ( <i>with no LOC</i> )	
- 801.52 ( <i>with brief [<math>&lt;1</math>hr] LOC</i> )	
- 801.53 ( <i>with moderate [1-24 hrs] LOC</i> )	



- 801.54 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC</i> )	
- 801.55 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC, w/o return to pre-existing conscious level</i> )	
- 801.46 ( <i>with LOC of unspecified duration</i> )	
- 800.59 ( <i>with concussion, unspecified</i> )	
<b>801.6 (<i>open fracture of base of skull with cerebral laceration and contusion...</i>)</b>	[U]
- 801.60 ( <i>unspecified state of consciousness</i> )	[P]
- 801.61 ( <i>with no LOC</i> )	
- 801.62 ( <i>with brief [<math>&lt;1</math>hr] LOC</i> )	
- 801.63 ( <i>with moderate [1-24 hrs] LOC</i> )	
- 801.64 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC</i> )	
- 801.65 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC, w/o return to pre-existing conscious level</i> )	
- 801.66 ( <i>with LOC of unspecified duration</i> )	
- 801.69 ( <i>with concussion, unspecified</i> )	
<b>801.7 (<i>open fracture of base of skull with subarachnoid, subdural, and extradural hemorrhage...</i>)</b>	[U]
- 801.70 ( <i>unspecified state of consciousness</i> )	[P]
- 801.71 ( <i>with no LOC</i> )	
- 801.72 ( <i>with brief [<math>&lt;1</math>hr] LOC</i> )	
- 801.73 ( <i>with moderate [1-24 hrs] LOC</i> )	
- 801.74 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC</i> )	
- 801.75 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC, w/o return to pre-existing conscious level</i> )	
- 801.76 ( <i>with LOC of unspecified duration</i> )	
- 801.79 ( <i>with concussion, unspecified</i> )	
<b>801.8 (<i>open fracture of base of skull with other and unspecified intracranial hemorrhage...</i>)</b>	[U]
- 801.80 ( <i>unspecified state of consciousness</i> )	[P]
- 801.81 ( <i>with no LOC</i> )	
- 801.82 ( <i>with brief [<math>&lt;1</math>hr] LOC</i> )	
- 801.83 ( <i>with moderate [1-24 hrs] LOC</i> )	
- 801.84 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC</i> )	
- 801.85 ( <i>with prolonged [<math>&gt;24</math> hrs] LOC, w/o return to pre-existing conscious level</i> )	
- 801.86 ( <i>with LOC of unspecified duration</i> )	
- 801.89 ( <i>with concussion, unspecified</i> )	

<b>801.9 (open fracture of base of skull with intracranial injury of other and unspecified nature...)</b>	[U]
- 801.90 (unspecified state of consciousness)	[P]
- 801.91 (with no LOC)	
- 801.92 (with brief [<1hr] LOC)	
- 801.93 (with moderate [1-24 hrs] LOC)	
- 801.94 (with prolonged [>24 hrs] LOC)	
- 801.95 (with prolonged [>24 hrs] LOC, w/o return to pre-existing conscious level)	
- 801.96 (with LOC of unspecified duration)	
- 801.99 (with concussion, unspecified)	
<b>803 Other and Unqualified Skull Fractures</b>	
<b>803.0 (other closed skull fractures without mention of intracranial injury...)</b>	[U]
- 803.00 (unspecified state of consciousness)	[M]
- 803.01 (with no LOC)	[M]
- 803.02 (with brief [<1hr] LOC)	[M]
- 803.03 (with moderate [1-24 hrs] LOC)	[M]
- 803.04 (with prolonged [>24 hrs] LOC)	[S]
- 803.05 (with prolonged [>24 hrs] LOC, w/o return to pre-existing conscious level)	[S]
- 803.06 (with LOC of unspecified duration)	[M]
- 803.09 (with concussion, unspecified)	[M]
<b>803.1 (other closed skull fractures with cerebral laceration and contusion...)</b>	[U]
- 803.10 (unspecified state of consciousness)	[M]
- 803.11 (with no LOC)	[M]
- 803.12 (with brief [<1hr] LOC)	[M]
- 803.13 (with moderate [1-24 hrs] LOC)	[M]
- 803.14 (with prolonged [>24 hrs] LOC)	[S]
- 803.15 (with prolonged [>24 hrs] LOC, w/o return to pre-existing conscious level)	[S]
- 803.16 (with LOC of unspecified duration)	[M]
- 803.19 (with concussion, unspecified)	[M]
<b>803.2 (other closed skull fractures with subarchnoid, subdural, and extradural hemorrhage...)</b>	[U]
- 803.20 (unspecified state of consciousness)	[M]
- 803.21 (with no LOC)	[M]

- 803.22 ( <i>with brief [&lt;1hr] LOC</i> )	[M]
- 803.23 ( <i>with moderate [1-24 hrs] LOC</i> )	[M]
- 803.24 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	[S]
- 803.25 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	[S]
- 803.26 ( <i>with LOC of unspecified duration</i> )	[M]
- 803.29 ( <i>with concussion, unspecified</i> )	[M]
<b>803.3 (<i>other closed skull fractures with other and unspecified intracranial hemorrhage...</i>)</b>	[U]
- 803.30 ( <i>unspecified state of consciousness</i> )	[M]
- 803.31 ( <i>with no LOC</i> )	[M]
- 803.12 ( <i>with brief [&lt;1hr] LOC</i> )	[M]
- 803.13 ( <i>with moderate [1-24 hrs] LOC</i> )	[M]
- 803.14 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	[S]
- 803.15 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	[S]
- 803.16 ( <i>with LOC of unspecified duration</i> )	[M]
- 803.39 ( <i>with concussion, unspecified</i> )	[M]
<b>803.4 (<i>other closed skull fractures with intracranial injury of other and unspecified nature...</i>)</b>	[U]
- 803.40 ( <i>unspecified state of consciousness</i> )	[M]
- 803.41 ( <i>with no LOC</i> )	[M]
- 803.42 ( <i>with brief [&lt;1hr] LOC</i> )	[M]
- 803.43 ( <i>with moderate [1-24 hrs] LOC</i> )	[M]
- 803.44 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	[S]
- 803.45 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	[S]
- 803.46 ( <i>with LOC of unspecified duration</i> )	[M]
- 803.49 ( <i>with concussion, unspecified</i> )	[M]
<b>803.5 (<i>other open skull fractures without mention of intracranial injury...</i>)</b>	[U]
- 803.50 ( <i>unspecified state of consciousness</i> )	[P]
- 803.51 ( <i>with no LOC</i> )	
- 803.52 ( <i>with brief [&lt;1hr] LOC</i> )	
- 803.53 ( <i>with moderate [1-24 hrs] LOC</i> )	
- 803.54 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	
- 803.55 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	

- 803.56 (with LOC of unspecified duration)	
- 803.59 (with concussion, unspecified)	
<b>803.6 (other open skull fractures with cerebral laceration and contusion...)</b>	<b>[U]</b>
- 803.60 (unspecified state of consciousness)	<b>[P]</b>
- 803.61 (with no LOC)	
- 803.62 (with brief [<1hr] LOC)	
- 803.63 (with moderate [1-24 hrs] LOC)	
- 803.64 (with prolonged [>24 hrs] LOC)	
- 803.65 (with prolonged [>24 hrs] LOC, w/o return to pre-existing conscious level)	
- 803.66 (with LOC of unspecified duration)	
- 803.69 (with concussion, unspecified)	
<b>803.7 (other open skull fractures with subarachnoid, subdural, and extradural hemorrhage...)</b>	<b>[U]</b>
- 803.70 (unspecified state of consciousness)	<b>[P]</b>
- 803.71 (with no LOC)	
- 803.72 (with brief [<1hr] LOC)	
- 803.73 (with moderate [1-24 hrs] LOC)	
- 803.74 (with prolonged [>24 hrs] LOC)	
- 803.75 (with prolonged [>24 hrs] LOC, w/o return to pre-existing conscious level)	
- 803.76 (with LOC of unspecified duration)	
- 803.79 (with concussion, unspecified)	
<b>803.8 (other open skull fractures with other and unspecified intracranial hemorrhage...)</b>	<b>[U]</b>
- 803.80 (unspecified state of consciousness)	<b>[P]</b>
- 803.81 (with no LOC)	
- 803.82 (with brief [<1hr] LOC)	
- 803.83 (with moderate [1-24 hrs] LOC)	
- 803.84 (with prolonged [>24 hrs] LOC)	
- 803.85 (with prolonged [>24 hrs] LOC, w/o return to pre-existing conscious level)	
- 803.86 (with LOC of unspecified duration)	
- 803.89 (with concussion, unspecified)	
<b>803.9 (other open skull fractures with intracranial injury of other and unspecified nature...)</b>	<b>[U]</b>
- 803.90 (unspecified state of consciousness)	<b>[P]</b>



- 803.91 ( <i>with no LOC</i> )	
- 804.92 ( <i>with brief [&lt;1hr] LOC</i> )	
- 804.93 ( <i>with moderate [1-24 hrs] LOC</i> )	
- 804.94 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	
- 804.95 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	
- 804.96 ( <i>with LOC of unspecified duration</i> )	
- 803.99 ( <i>with concussion, unspecified</i> )	
<b>804 Multiple Fractures Involving Skull or Face With Other Bones</b>	
<b>804.0 (<i>closed fracture involving skull or face with other bones without mention of intracranial injury...</i>)</b>	<b>[U]</b>
- 804.00 ( <i>unspecified state of consciousness</i> )	<b>[M]</b>
- 804.01 ( <i>with no LOC</i> )	<b>[M]</b>
- 804.02 ( <i>with brief [&lt;1hr] LOC</i> )	<b>[M]</b>
- 804.03 ( <i>with moderate [1-24 hrs] LOC</i> )	<b>[M]</b>
- 804.04 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	<b>[S]</b>
- 804.05 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	<b>[S]</b>
- 804.06 ( <i>with LOC of unspecified duration</i> )	<b>[M]</b>
- 804.09 ( <i>with concussion, unspecified</i> )	<b>[M]</b>
<b>804.1 (<i>closed fractures involving skull or face with other bones with cerebral laceration and contusion...</i>)</b>	<b>[U]</b>
- 804.10 ( <i>unspecified state of consciousness</i> )	<b>[M]</b>
- 804.11 ( <i>with no LOC</i> )	<b>[M]</b>
- 804.12 ( <i>with brief [&lt;1hr] LOC</i> )	<b>[M]</b>
- 804.13 ( <i>with moderate [1-24 hrs] LOC</i> )	<b>[M]</b>
- 804.14 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	<b>[S]</b>
- 804.15 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	<b>[S]</b>
- 804.16 ( <i>with LOC of unspecified duration</i> )	<b>[M]</b>
- 804.19 ( <i>with concussion, unspecified</i> )	<b>[M]</b>
<b>804.2 (<i>closed fractures involving skull or face with other bones with subarachnoid, subdural, and extradural hemorrhage...</i>)</b>	<b>[U]</b>
- 804.20 ( <i>unspecified state of consciousness</i> )	<b>[M]</b>
- 804.21 ( <i>with no LOC</i> )	<b>[M]</b>
- 804.22 ( <i>with brief [&lt;1hr] LOC</i> )	<b>[M]</b>
- 804.23 ( <i>with moderate [1-24 hrs] LOC</i> )	<b>[M]</b>



- 804.24 (with prolonged [ $>24$ hrs] LOC)	[S]
- 804.25 (with prolonged [ $>24$ hrs] LOC, w/o return to pre-existing conscious level)	[S]
- 804.26 (with LOC of <i>unspecified</i> duration)	[M]
- 804.29 (with concussion, <i>unspecified</i> )	[M]
<b>804.3 (closed fractures involving skull or face with other bones with other and unspecified intracranial hemorrhage...)</b>	[U]
- 804.30 ( <i>unspecified</i> state of consciousness)	[M]
- 804.31 (with no LOC)	[M]
- 804.32 (with brief [ $<1$ hr] LOC)	[M]
- 804.13 (with moderate [1-24 hrs] LOC)	[M]
- 804.34 (with prolonged [ $>24$ hrs] LOC)	[S]
- 804.35 (with prolonged [ $>24$ hrs] LOC, w/o return to pre-existing conscious level)	[S]
- 804.36 (with LOC of <i>unspecified</i> duration)	[M]
- 804.39 (with concussion, <i>unspecified</i> )	[M]
<b>804.4 (closed fractures involving skull or face with other bones with intracranial injury of other and unspecified nature...)</b>	[U]
- 804.40 ( <i>unspecified</i> state of consciousness)	[M]
- 804.41 (with no LOC)	[M]
- 804.42 (with brief [ $<1$ hr] LOC)	[M]
- 804.43 (with moderate [1-24 hrs] LOC)	[M]
- 804.44 (with prolonged [ $>24$ hrs] LOC)	[S]
- 804.45 (with prolonged [ $>24$ hrs] LOC, w/o return to pre-existing conscious level)	[S]
- 804.46 (with LOC of <i>unspecified</i> duration)	[M]
- 804.49 (with concussion, <i>unspecified</i> )	[M]
<b>804.5 (open fractures involving skull or face with other bones without mention of intracranial injury...)</b>	[U]
- 804.50 ( <i>unspecified</i> state of consciousness)	[P]
- 804.51 (with no LOC)	
- 804.52 (with brief [ $<1$ hr] LOC)	
- 804.53 (with moderate [1-24 hrs] LOC)	
- 804.54 (with prolonged [ $>24$ hrs] LOC)	
- 804.55 (with prolonged [ $>24$ hrs] LOC, w/o return to pre-existing conscious level)	
- 804.56 (with LOC of <i>unspecified</i> duration)	



- 804.59 ( <i>with concussion, unspecified</i> )	
<b>804.6 (<i>open fractures involving skull or face with other bones with cerebral laceration and contusion...</i>)</b>	[U]
- 804.60 ( <i>unspecified state of consciousness</i> )	[P]
- 804.61 ( <i>with no LOC</i> )	
- 804.62 ( <i>with brief [&lt;1hr] LOC</i> )	
- 804.63 ( <i>with moderate [1-24 hrs] LOC</i> )	
- 804.64 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	
- 804.65 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	
- 804.66 ( <i>with LOC of unspecified duration</i> )	
- 804.69 ( <i>with concussion, unspecified</i> )	
<b>804.7 (<i>open fractures involving skull or face with other bones with subdural and extradural hemorrhage...</i>)</b>	
804.70 ( <i>unspecified state of consciousness</i> )	[P]
804.71 ( <i>with no LOC</i> )	
804.72 ( <i>with brief [&lt;1hr] LOC</i> )	
804.73 ( <i>with moderate [1-24 hrs] LOC</i> )	
804.74 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	
804.75 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	
804.76 ( <i>with LOC of unspecified duration</i> )	
804.79 ( <i>with concussion, unspecified</i> )	
<b>804.8 (<i>open fractures involving skull or face with other bones with other and unspecified intracranial hemorrhage...</i>)</b>	
- 804.80 ( <i>unspecified state of consciousness</i> )	[P]
- 804.81 ( <i>with no LOC</i> )	
- 804.82 ( <i>with brief [&lt;1hr] LOC</i> )	
- 804.83 ( <i>with moderate [1-24 hrs] LOC</i> )	
- 804.84 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	
- 804.85 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	
- 804.86 ( <i>with LOC of unspecified duration</i> )	
- 804.89 ( <i>with concussion, unspecified</i> )	
<b>804.9 (<i>open fractures involving skull or face with other bones with intracranial injury of other and unspecified nature...</i>)</b>	
- 804.90 ( <i>unspecified state of consciousness</i> )	[P]

	- 804.91 ( <i>with no LOC</i> )	
	- 804.92 ( <i>with brief [&lt;1hr] LOC</i> )	
	- 804.93 ( <i>with moderate [1-24 hrs] LOC</i> )	
	- 804.94 ( <i>with prolonged [&gt;24 hrs] LOC</i> )	
	- 804.95 ( <i>with prolonged [&gt;24 hrs] LOC, w/o return to pre-existing conscious level</i> )	
	- 804.96 ( <i>with LOC of unspecified duration</i> )	
	- 804.99 ( <i>with concussion, unspecified</i> )	

Condition	ICD-9-CM Codes	Severity
Traumatic Brain Injury  ( <i>other</i> )	<b>Injury to Optic chiasm and Optic Tract</b>	
	950.1 (injury to optic chiasm)	[U]
	950.2 (injury to optic pathways)	[U]
	950.3 (injury to visual cortex)	[U]

Condition	ICD-9-CM Codes	Severity
Traumatic Brain Injury  ( <i>other</i> )	907.0 (late effect of intracranial injury <i>without</i> mention of skull fracture)	[U]
	959.01 (head injury, unspecified)	[M]

#### *Extender Codes for use with ICD9*

Condition	ICD-9-CM Codes	Severity
Traumatic Brain Injury	V15.5 (injury) <i>with extender codes...</i> [2,7,C]	[m]
	V15.52 (personal history of traumatic brain injury) <i>with extender code...</i> [2,7,C]	
	V15.59 (personal history of other injury) <i>with extender codes...</i> [2,7,C]	
	V15.5 (injury) <i>with extender codes...</i> [3,8,D]	[M]
	V15.52 (personal history of traumatic brain injury) <i>with extender code...</i> [3,8,D]	
	V15.59 (personal history of other injury) <i>with extender codes...</i> [3,8,D]	
	V15.5 (injury) <i>with extender codes...</i> [4,9,E]	[S]
	V15.52 (personal history of traumatic brain injury) <i>with extender code...</i> [4,9,E]	
	V15.59 (personal history of other injury) <i>with extender codes...</i> [4,9,E]	
V15.5 (injury) <i>with extender codes...</i> [5,A,F]	[P]	



V15.52 (personal history of traumatic brain injury) with extender code...[5,A,F]	
V15.59 (personal history of other injury) with extender codes... [5,A,F]	
V15.5 (injury) with extender codes...[1,6,B]	[U]
V15.52 (personal history of traumatic brain injury) with extender code...[1,6,B]]	
V15.59 (personal history of other injury) with extender codes... [1,6,B]]	
1_ Personal history of TBI, Global War On Terrorism (GWOT) Related, Unknown level of severity	[U]
2_ Personal history of TBI, GWOT Related, Mild (Glasgow Coma Scale 13-15), LOC<1hr, Post Trauma Amnesia <24 hrs	[m]
3_ Personal history of TBI ,GWOT Related, Moderate (Glasgow Coma Scale 9-12) ,LOC 1-24 hrs Post Trauma Amnesia 1-6 days	[M]
4_ Personal history of TBI, GWOT Related, Severe (Glasgow Coma Scale 3-8), LOC >24 hrs, Post Trauma Amnesia >6 days	[S]
5_ Personal history of TBI, GWOT Related, Penetrating Intracranial Wound	[P]
6_ Personal history of TBI, Not GWOT Related, Unknown level of severity	[U]
7_ Personal history of TBI, Not GWOT Related, Mild (Glasgow Coma Scale 13-15), LOC<1 hr Post Trauma Amnesia <24 hrs	[m]
8_ Personal history of TBI, Not GWOT Related, Moderate (Glasgow Coma Scale 9-12), LOC 1-24 hrs Post Trauma Amnesia 1-6 days	[M]
9_ Personal history of TBI, Not GWOT Related, Severe (Glasgow Coma Scale 3-8), LOC >24 hrs, Post Trauma Amnesia >6 day	[S]
A_ Personal history of TBI, Not GWOT Related, Penetrating Intracranial Wound	[P]
B_ Personal history of TBI, Unknown if GWOT Related, Unknown level of severity	[U]
C_ Personal history of, Unknown if GWOT Related, Mild (Glasgow Coma Scale 13-15), LOC<1 hr, Post Trauma Amnesia <24 hrs	[m]
D_ Personal history of Unknown if GWOT Related, Moderate (Glasgow Coma Scale 9-12), LOC 1-24 hrs, Post Trauma Amnesia 1-6 days	[M]
E_ Personal history of TBI, Unknown if GWOT Related, Severe (Glasgow Coma Scale 3-8), LOC >24 hrs, Post Trauma Amnesia >6 day	[S]
F_ Personal history of TBI, Unknown if GWOT Related, Penetrating Intracranial Wound	[P]

### Development and Revisions

*The DoD's surveillance case definition for TBI is the result of collaborations and consensus of the Defense and Veterans Brain Injury Center (DVBIC), the Armed Forces Health Surveillance Branch (AFHSB), and the Centers for Disease Control and Prevention (CDC).*

- In December of 2015 the case definition was updated to include ICD10 codes.



- All ICD10 codes for TBI are further classified into severity categories. The categories include mild, moderate, severe, penetrating and unclassifiable injuries (see definitions at the top of this document).
- In 2015, the ICD-10-CM methodology of using “incomplete” codes (i.e., codes lacking a description of loss of consciousness, encounter type, or otherwise incomplete codes) to count incident cases of TBI was reviewed. For the purposes of this case definition, incomplete codes will only be used if full information is not available. If 7<sup>th</sup> character codes [A,B], 6<sup>th</sup> digit codes [1-9] or a 5<sup>th</sup> digit character code [X] is missing, the remaining code characters will be used to identify a case of TBI. Investigators may wish to review the specific codes and coding methodology outlined in *Appendix II: ICD9 and ICD10 Code Set in Excel*
- In ICD10 most injury diagnosis codes have a 7<sup>th</sup> character (letter) that specifies whether the diagnosis involves the initial medical encounter (A), subsequent encounter (D), or a sequela (S) of an injury diagnosis. When coding fracture injuries codes also include (A) initial encounter for closed fracture, and (B) initial encounter for open fracture. At this time, for surveillance purposes, only codes with a 7<sup>th</sup> character (A) and (B) will be used.

The impact of including all or only some of the 7<sup>th</sup> digit characters on the total number of “TBI morbidity cases”, as well as the population comparability to the “TBI morbidity cases” currently identified using the ICD9 morbidity definition is unknown. When data are available, AFHSB and DVBIC will analyze, and create a separate report for, all 7<sup>th</sup> digit characters to confirm the sensitivity of the proposed code set.

- Aug 2008: The original case definition for TBI was the result of numerous collaborations between the Defense and Veterans Brain Injury Center (DVBIC), the Traumatic Brain Injury Task Force, the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE), the US Army Public Health Command (USAPHC), formerly the Center for Health Promotion and Preventive Medicine (CHPPM), the Armed Forces Health Surveillance Center (AFHSC), and the Centers for Disease Control and Prevention (CDC).<sup>4</sup>

#### *Case Definition and Incidence Rule Rationale*

- This incidence rule identifies Service members’ first active duty TBI diagnosis. The date of an individual’s initial TBI medical encounter determines the calendar year in which they are considered an incident case, and the highest level of severity documented in the medical record as a TBI medical encounter determines the severity category classification.

Due to the difficulty in distinguishing newly diagnosed traumatic brain injuries from medical records denoting repeat encounters for existing TBIs, an individual is considered an incident case *only* once per lifetime. This methodology is designed to identify Service members’ first active duty TBI diagnosis and does not capture new injury diagnoses, (i.e., if an individual sustains more than one TBI, only their first injury will be counted as a case). Therefore, the methodology underestimates the total number of diagnosed TBIs in the surveillance population.

In terms of severity classification, if an individual’s medical record contains multiple TBI severity codes (e.g., mild, moderate, severe, or penetrating), the individual is categorized by the highest severity recorded in the entire medical record. For example, an individual with a previous “mild” TBI code will be counted as having a “moderate” TBI if the individual is later diagnosed with a “moderate” TBI, even if the new diagnoses may represent a new injury.

<sup>4</sup> Historical rationale for code decisions obtained from Executive Summaries of the “Surveillance Workgroup meetings for TBI related ICD9 codes” sponsored by the Defense and Veterans Brain Injury Center (DVBIC) and the TBI Component of the Defense Centers of Excellence (DCoE), Oct 8, Aug 27, and Sept 17, 2008.



With the introduction of ICD-10-CM, coding practice may improve to allow the identification of individuals with multiple TBIs. When data are available this incidence rule will be reviewed by the newly formed DVbic and AFHSB Incidence Rule Work Group.

#### *Code Set Determination and Rationale*

- For information on best practices on TBI coding in the Military Health System, refer to the “Professional Services and Specialty Medical Coding Guidelines - Joint Coding Guidance Working Group (JCGWG) and as subsequently updated<sup>5</sup> the Specialty Coding Guidelines (Version 3.2, effective date 2009/10/01 for ICD9) by the Unified Biostatistical Utility working group.<sup>6</sup>
- In 2015 AFHSB and DVbic reviewed and compared the code sets used by the CDC and the DOD for TBI surveillance and made the following determinations.
  - The DOD will continue to capture data for post-concussion syndrome, ICD9 310.2 / ICD10 F07.81. The DOD has a full set of linked health data and is able to determine when this condition is the first TBI-related diagnosis. This code is not included in the CDC TBI case definition.
  - ICD10 code S01.90X (unspecified open wound of unspecified part of head) will not be used in this code set. The code may represent a minor injury such as a scalp laceration and is deemed to lack sufficient specificity to classify an injury as a TBI for the purposes of DoD TBI surveillance.
  - ICD10 code S02.8^ (fracture of other specified skull *and* facial bones) and ICD10 code S07.1^ (crushing injury of skull) were added to the ICD10 code set in an effort to be consistent with the CDC. The corresponding ICD9 codes 802.8 (closed fracture of other facial bones), 802.9 (open fracture of other facial bones, and 925.1 (crushing injury of face and scalp) do not mention skull fractures and will not be included in the DOD code set.
  - ICD10 codes S09.8 (other specified injuries of head) and S09.90 (unspecified injury of the head) will not be included in the code set given emerging epidemiological evidence on their lack of specificity.<sup>7</sup> This is consistent with the CDC. The corresponding ICD9 code 959.01 (head injury, unspecified) will remain in the code set until further analyses can be performed.
  - Codes ICD10 T74.4 / ICD9 995.55 (shaken infant syndrome) is included in the standard DoD TBI case definition in an effort to be consistent with the CDC. This code is not useful for surveillance of Service members; however, this code may be included for TBI surveillance among MHS beneficiary groups.
  - For investigators interested in an exact match between the ICD10 code series S06.1X (traumatic cerebral edema) to the corresponding ICD9 codes, consider including ICD9 code 348.5 (cerebral edema) in the query in addition to the approximate match provided **Appendix I**.
- January 2010: V15.52\_1 thru V15.52\_9 and V15.52\_A thru V15.52\_F were added to the surveillance case definition. These codes replaced the V15.5 and the V15.59 series. The V15.5

<sup>5</sup> Available at <http://health.mil/Military-Health-Topics/Technology/Support-Areas/MHS-Specific-Coding-Guidelines>. Last accessed Oct 2015.

<sup>6</sup> Unified Biostatistical Utility Group (UBU Coding Guidelines, Appendix G. Available at [http://www.tricare.mil/ocfo/bea/ubu/coding\\_guidelines.cfm](http://www.tricare.mil/ocfo/bea/ubu/coding_guidelines.cfm). Last accessed Oct 2015.

<sup>7</sup> Bazarian JJ, Veazie P, Mookerjee S, Brooke Lerner E. Accuracy of Mild Traumatic Brain Injury Case Ascertainment Using ICD-9 Codes. *Acad Emerg Med*, 2006; 13:31-38.



and the V15.59 series codes, however, are still included in the surveillance case definition for analyses using data from 2010 and prior.

- December 2008: ICD9 code 907.0 (late effect of intracranial injury without mention of skull fracture) was added to surveillance case definition for TBI. The working group felt that adding 907.0 would improve accuracy. The group acknowledged that late effect codes might suggest a consequence of TBI versus a prevalent case and that the purpose of DoD surveillance is to track the prevalence of TBI and not the consequences of TBI.

The possibility of adding ICD9 code 905.0 (late effect of fracture of skull and face bones) was discussed by the working group. The code was not included because the code included facial fractures and the group felt this might add a large number of face and nose fractures that were not accompanied by a TBI.

- October 2008, in an effort to standardize the codes used by DVBIC, AFHSC, and the CDC, the following changes were made to the TBI case definition. These changes significantly increased the numbers of TBI cases ascertained for routine surveillance.
  - ICD9 code 310.2 (post-concussion syndrome) was added to the surveillance case definition. The working group added the code because there are some instances where there are no electronic records of earlier encounters associated with other TBI codes. In such instances, code 310.2 would be the only indicator that a TBI had been sustained.
  - The CDC does not include ICD9 code 310.2 in their case definition for TBI because the code likely indicates prevalent cases and they are interested in incident cases only. On the contrary, the military surveillance objectives are to identify those suffering from TBI and TBI-related conditions, i.e., prevalent cases, as well as new occurrences of TBI, i.e., incident cases.
  - ICD9 code 802 (fracture of face bones) was *removed* from the surveillance case definition. The working group agreed that, although the 802 series is a possible indicator of a TBI, the inclusion of a diagnosis in the 802 series, without any other defining TBI code, would increase the number of false positives.
  - ICD9 codes 950.1-950.3 (injury to optic chiasm, optic pathways, visual cortex) and V codes V15.5\_1 thru V15.5\_9 and V15.5\_A thru V15.5\_F were *added* to the definition. These changes were made to be consistent with the CDC and to make the data analysis “all inclusive and comparable to civilian numbers.”
- TBI DoD extender codes, (1\_9 and A\_F), are not part of the ICD-9-CM coding system. They are one-character extenders (sixth digits) added to a specific ICD9 code to denote a unique meaning. The codes were developed by TRICARE and adapted for use in the DoD to capture additional detail on the nature of injury, (e.g., penetrating vs. non-penetrating, severity of injury, loss of consciousness, post-traumatic amnesia, Glasgow Coma Scale, etc.) and to indicate if the diagnosis was made in the context of the Global War on Terrorism (GWOT). These TBI-specific V-codes became available on January 28, 2008. See [http://www.tricare.mil/ocfo/bea/ubu/coding\\_guidelines.cfm](http://www.tricare.mil/ocfo/bea/ubu/coding_guidelines.cfm) for a complete description.

#### *Severity Classification Determination and Rationale*

- For reporting of TBI, severity categories are ranked from more to less severe as follows: Penetrating, Severe, Moderate, Mild, and Unclassifiable. The highest level of severity documented as a TBI healthcare encounter determines the severity category classification.
- In 2015 AFHSB and DVBIC reviewed the ICD9 and ICD10 code sets and made the following corrections, updates, and changes to the severity classifications. These changes are based upon the recommendations of the DVBIC TBI Clinicians workgroup and will be further evaluated when



ICD10 data are available. There are *no retrospective changes to the ICD9 methodology* and none are planned at this time. The updates to the ICD10 methodology may result in some changes in the distribution of severities.

- The methodology for classifying “invalid” codes (i.e., parent codes and codes without a description of consciousness) was reviewed. For ICD-9-CM codes, parent codes were often categorized as a TBI of “Unclassifiable” severity. The DVBIC Clinicians Workgroup determined this methodology should be changed to reflect new data and scientific knowledge. For ICD-10-CM codes, parent codes are now assigned the lowest severity in the series rather than being categorized as unclassifiable. For example, S06.0, a code that previously would have been considered “invalid” and categorized as unclassifiable, will be classified as “mild” similar to other members of the series such as S06.0X0A (concussion w/o LOC, initial encounter) and S06.0X9A (concussion w/LOC of unspecified duration, initial encounter). Investigators may review the assigned severities in the ICD-9-CM and ICD-10-CM tables when cross-walking these codes between the two coding systems.
- The severity of ICD10 codes S04.02-S04.04 (injury to optic chiasm and optic tract) were deemed more likely than not to be associated with a “Severe” TBI.<sup>3</sup> The analogous codes in ICD9, 950.1-950.3 were previously categorized as “Unclassifiable” and will remain unchanged.
- The severity of S06.9X9S (unspecified intracranial injury with LOC of unspecified duration, sequela) was deemed to be “Moderate.” The presence of an intracranial injury is likely identified by an abnormal CT scan. The updated DoD TBI definition states that an abnormal CT scan indicates at least a “Moderate” TBI.<sup>8</sup> The analogous code in ICD9, 907.0 (late effect of intracranial injury *without* mention of skull fracture), was previously categorized as “Unclassifiable” and will remain unchanged.
- ICD10 codes S02.110-S02.113 (occipital condyle fracture) were classified as follows; type I and type III are “mild”; type II remains “Moderate”. Type II is an extension of a basilar skull fracture<sup>9</sup> and this case definition categorizes basilar skull fractures as *at least* “Moderate” TBIs. Types I and II by themselves do not suggest that an injury is likely more than a “mild” TBI. In ICD9 the analogous codes were all classified as “Moderate” TBIs and will remain unchanged.
- In ICD9 the DVBIC Clinicians Workgroup noted that closed skull fractures (803.2x, 803.4x, 804.2x, and 804.4x) were previously categorized as “Unclassifiable.” They felt these injuries likely represent *at least* a “Moderate” TBI because the presence of a skull fracture is felt to take precedence over the words “without LOC” or “brief LOC” or “unspecified concussion.” While no retrospective changes to ICD9 are planned, the analogous ICD10 codes have been categorized as *at least* “Moderate” based upon the recommendations of the DVBIC Clinicians Workgroup.
- The DVBIC Clinicians Workgroup reviewed the 2008 decision to exclude ICD9 code 905.0 (late effect of fracture of skull and face bones). Subsequent TBI coding guidance for clinicians recommends the use of code 905.0,<sup>10</sup> and the code is also used by the Department of Veterans Affairs TBI Registry. Basilar skull fractures are categorized as *at least* “Moderate” TBIs, highlighting the language “fracture of skull *and* face” rather than “fracture of skull *or* face.” Retrospective changes to ICD9 methodology are not planned at this time; however, future analysis is planned in an effort to harmonize VA-DoD methodology. This

<sup>8</sup> Memorandum from the Assistant Secretary of Defense (Health Affairs). Traumatic Brain Injury: Updated Definition and Reporting, dated 6 April 2015. U.S. Department of Defense, Washington, DC.

<sup>9</sup> Leone A, Cerase A, Colosimo C, Lauro L, Puca A, Marano P. Occipital condylar fractures: a review. *Radiology*. 2000 Sep;216(3):635-44

<sup>10</sup> Defense and Veterans Brain Injury Center (2010). Mild Traumatic Brain Injury Pocket Guide (CONUS). Silver Spring, MD. Available at [info@dvbic.org](mailto:info@dvbic.org)



code is not used by the CDC but could be compatible with DVBIC efforts to capture late diagnoses of deployment-related TBI.

### *Deployment-Associated Incident Cases of TBI*

If an analysis requires “deployment-associated” incident case counts, the initial defining encounter must have occurred while the individual was deployed to, or *within 30 days of returning from* a theater of operations of interest and the deployment must have been for *30 days or longer*. AFHSB includes Department of Defense defined operations associated with deployment in many of its analyses, (e.g., Operations Enduring Freedom (OEF), Iraqi Freedom (OIF), and New Dawn (OND)).

The specification of “within 30-days of returning” is in recognition of the initial diagnoses for theater sustained TBI that occur following return to garrison. Diagnoses of theater- incurred TBI may continue beyond 30 days following return and are not captured using this classification. When estimating such cases, it should be noted that a causal association for TBI due to an event that occurred during a deployment or direct combat cannot be proven using data available to AFHSB.<sup>11,12</sup>

## **Reports**

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AFHSB reports on TBI in the following reports:

- Quarterly: Traumatic Brain Injury (TBI) report for the Office of the Assistant Secretary of Defense for Health Affairs (HA); Sections of the report available on the Defense and Veterans Brain Injury Center (DVBIC) website at: <http://dvbic.dcoe.mil/dod-worldwide-numbers-tbi>

## **Review**

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Dec 2015	Case definition reviewed and updated by the Defense and Veterans Brain Injury Center (DVBIC) and the AFHSB Surveillance Methods and Standards (SMS) working group.
Sept 2014	Case definition reviewed and updated by the AFHSC Surveillance Methods and Standards (SMS) working group.
Nov 2010	Case definition reviewed and adopted by AFHSC Surveillance Methods and Standards (SMS) working group.
Nov 2010	Case definition reviewed by DVBIC, Manager of TBI Surveillance Systems

## **Comments**

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None

<sup>11</sup> Brundage JF, Taubman SB, Hunt DJ, Clark LL. (2015) Whither the "signature wounds of the war" after the war: estimates of incidence rates and proportions of TBI and PTSD diagnoses attributable to background risk, enhanced ascertainment, and active war zone service, active component, U.S. Armed Forces, 2003-2014. *MSMR*. 2015 Feb;22(2):2-11.

<sup>12</sup> Regasa LE1, Thomas DM, Gill RS, Marion DW, Ivins BJ. Military Deployment May Increase the Risk for Traumatic Brain Injury Following Deployment. *J Head Trauma Rehabil*. 2015 Jun 19.

