

**ED Initiative**  
**Guidelines for the Disposition of the Patient with a**  
**Traumatic Brain Injury**

**Purpose:** The purpose of this guideline is to assure the appropriate triage, monitoring, and evaluation of the patient with a suspected or diagnosed traumatic brain injury.

**Definitions:**

**Traumatic Brain Injury:** Traumatic brain injury (TBI) also called acquired brain injury or simply head injury occurs when there is a sudden insult to the brain caused by an external physical force. This may produce a diminished or altered state of consciousness, which results in an impairment of cognitive abilities or physical functioning. It can also result in the disturbance of behavioral or emotional functioning. These impairments may be either temporary or permanent and cause partial or total functional disability or psychosocial maladjustment. Symptoms of a TBI can range from mild, moderate, to severe.

**Mild Traumatic Brain Injury:** Defined by a Glasgow Coma Scale Score of 13-15. Mild traumatic brain injury occurs when the patient experiences a change in mental status at the time of injury. The person may be dazed, confused, or loses consciousness for a few seconds or minutes.

**Moderate Traumatic Brain Injury:** Defined by a Glasgow Coma Scale Score of 9-12. A moderate traumatic brain injury occurs when the patient experiences a loss of consciousness lasting from a few minutes to a few hours. He/she may also experience confusion, lasting days to weeks, and/or a physical cognitive, or behavioral impairment, lasting from days to months.

**Severe Traumatic Brain Injury:** Defined by a Glasgow Coma Scale Score of 8 or less. Severe brain injury occurs when a prolonged unconscious state or coma lasts days, weeks, or months. Severe brain injury can be further categorized into the following states; coma, vegetative, persistent vegetative, or minimally responsive.

**Guidelines:**

- I. Upon Neurosurgical consultation (*Please see Timing of Neurosurgical Consultation Guidelines*) the patient's disposition will be determined by in the Neurosurgery Attending and/or Chief Resident in consultation with one or more of the following individuals; ED Attending, ED Resident, Trauma Attending, and/or the Trauma Senior Resident.

- II. Criteria for admission to the ICU to include but not limited to
  - a. GCS  $\leq 8$
  - b. Intubated patient with a positive Head CT finding
  - c. GCS 9-14 with a waxing/waning neurological exam and under the influence of alcohol and/or mind altering substance, requiring every one hour neurological examination
  - d. GCS 9-14 with a waxing/waning neurological exam and a positive Head CT finding, requiring every one hour neurological examination
  - e. GCS 9-14 and a Head CT finding of significant cerebral contusion as determined by the Neurosurgical Attending and/or Neurosurgical Chief Resident, requiring every one hour neurological examination
  - f. GCS 9-14 and suspected of being on anticoagulant therapy or a known diagnosis of coagulopathy (as defined by an INR  $>1.5$  or Platelets  $<100,000$ )
  - g. Any patient with a change in follow-up CT scan findings (*See Guidelines for obtaining a Head CT*) requiring every one hour neurological examination
  - h. GCS 9-14 and age  $\geq 65$ , requiring every one hour neurological examination
  - i. Any patient who is deemed to require every one hour neurological examination for  $>12$  hours
  
- III. Criteria for admission to 4B or 4D TCR
  - a. Patients requiring **continuous pulse oximetry and/or telemetry** are to be admitted to **4B ONLY**
  - b. GCS 10-14, under the influence of alcohol and/or mind altering substance, requiring every two hour neurological examination
  - c. GCS 10-15, a positive Head CT finding of a mild/moderate SAH, SDH, or Cerebral Contusion with no evidence of midline shift (as determined by the Neurosurgical Attending) that is unchanged on subsequent scan (*See guidelines for obtaining a Head CT*), requiring every two hour neurological examination
  - d. Any patient who is deemed to require every two hour neurological examination
  
- IV. Criteria for admission to a General Med-Surg Floor
  - a. GCS 13-15 with a Head CT finding of a mild SAH, SDH, or Cerebral Contusion with no evidence of midline shift (as determined by the Neurosurgical Attending) that is unchanged on subsequent CT (*See Guidelines for obtaining a Head CT*)
  - b. Negative Head CT with a GCS 13-14 with failure to neurological improve to a GCS of 15 and is without reliable family member and/or friend to provide observation for 24-48 hours upon return home
  - c. Any patient requiring every four hour neurological examination

- V. Criteria for Discharge from the ED
  - a. **NO Patient for whom a Neurosurgical Consultation has been requested will be discharged from the ED without first being seen and evaluated by either the Neurosurgical Chief Resident, and/or a Neurosurgical Attending.**
  - b. If the patient is seen and evaluated only by the Neurosurgical Chief Resident, the patient shall not be discharged until the case has been discussed either in person or by phone with the Neurosurgical Attending and approved by him/her for discharge.
    - i. No documented loss of consciousness or evidence of seizure activity and a negative Head CT
    - ii. Brief loss of consciousness and/or amnesic to the event with a negative Head CT
    - iii. Confusion upon admission (GCS of 13-14) with resolution and full return of cognition to a GCS of 15 and a negative Head CT, if the patient has a reliable family member and/or friend to provide observation for 24-48 hours upon return home
    - iv. Brief loss of consciousness, with a GCS of 15 or a GCS of 13-14 improving to 15, a Head CT with the presence of a small SAH or SDH (as determined by the Neurosurgical Attending) that is unchanged on the follow-up scan (*See Guidelines for obtaining a Head CT*), and if the patient has a reliable family member and/or friend to provide observation for 24-48 hours upon return home
  - c. All patients discharged from the ED must receive the traumatic brain injury discharge instructions.
- VI. Guidelines for Obtaining Neurosurgical Clinic Follow-up;
  - a. Any patient with a positive Head CT finding will receive follow-up in either the Neurosurgical or TBI clinic.
  - b. Procedure for obtaining a Neurosurgical clinic appointment
    - i. All patient's requiring neurosurgical follow-up must be scheduled through the e-consult referral system. It is the responsibility of the ED staff to initiate the referral process. Please follow instructional prompts.