

ED Initiative
Guidelines for Head Computed Tomographic Imaging
In the Patient with Suspected Mild-Moderate Head Injury

Purpose: The purpose of this guideline is to correctly diagnose those patients with mild-moderate traumatic brain injury and to ensure consistency in obtaining computed tomographic radiographic examination in the patient who present with altered mentation.

Definitions:

Altered Mentation: Defined as an aberrancy from a persons normal mentation.

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.

Guideline:

- I. All patients with suspected Mild-Moderate Head Injury or those patients under the influence of toxic-metabolic agents require serial neurological assessment (recommended to be performed every 1-2 hours, see assessment/monitoring guidelines). In patients with known ETOH abuse, the index of suspicion should remain high as deterioration occurs late from initial presentation.

- II. Guidelines for obtaining a Non-Contrast Head Computed Tomographic (CT) is indicated in head trauma patients **with** loss of consciousness or posttraumatic amnesia if one or more of the following is present;
 - a. Headache
 - b. Vomiting
 - c. Age >60 Years
 - d. Drug or Alcohol Intoxication
 - e. Deficits in Short-Term Memory
 - f. Physical Evidence of Trauma Above the Clavicle
 - g. Posttraumatic Seizure
 - h. GCS <15
 - i. Focal Neurologic Deficit
 - j. Coagulopathy (INR \geq 1.4)

- III. Guidelines for obtaining a Non-Contrast Head CT **should** be considered in head trauma patients **with no** loss of consciousness or posttraumatic amnesia if there is;
 - a. Focal Neurologic Deficit
 - b. Vomiting
 - c. Severe Headache
 - d. Age \geq 65 Years
 - e. Physical Signs of a Basilar Skull Fracture
 - f. GCS < 15
 - g. Coagulopathy (INR \geq 1.4)
 - h. Dangerous Mechanism of Injury (Ejection from Motor Vehicle, PVA, Fall from Height \geq 3 Feet or 5 Stairs)

- IV. Any patient with an initial **positive** Head CT finding; SAH, SDH, Cerebral Contusion, and/or Intraventricular Hemorrhage is required to have a subsequent scan within **six** hours to assess for evolution of the intracranial bleed.