Suggested CT Algorithm for Mild Traumatic Head Injury (GCS 14 or 15)

Age 0-23 Months

GCS=14
Or
Other signs of altered mental status (any of the following):
- agitation
- somnolence
- repetitive questioning
- slow response to verbal communication
Or
Palpable skull fracture

Yes
CT Recommended
4.4% risk of clinically important TBI

No

Occipital or parietal or temporal scalp hematoma
Or
History of LOC >= 5 seconds
Or
Severe mechanism of injury (any of the following):
- Motor vehicle crash (MVC) with patient ejection
- MVC with death of another passenger
- MVC with rollover
- Pedestrian or bicyclist without helmet struck by a motorized vehicle
- Falls of more than 0.9 m (3 feet)
- Head struck by a high-impact object
Or
Not acting normally per parent

Yes
Observation versus CT on the basis of other clinical factors including:
- Physician experience
- Multiple versus isolated findings
(Patients with certain isolated findings such as isolated LOC, isolated headache, isolated vomiting, and certain types of isolated scalp hematomas in infants older than 3 months have a substantially lower than 1% risk of clinically important TBI)
- Worsening symptoms or signs during or after emergency department observation
- Age <= 3 months higher risk
- Parental preference

No
< 0.02% risk of clinically important TBI

CT generally not recommended
The risk of clinically important TBI for these patients is exceedingly low, generally lower than the risk of CT-induced malignancies.

Based on Figure 3 of Kuppermann, et al, Identification of children at very low risk of clinically important brain injuries after head trauma: a prospective cohort study, Lancet, 2009 Oct 3;374(9696):1160-70

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http://www.stritch.luc.edu/emsc
Suggested CT Algorithm for Mild Traumatic Head Injury (GCS 14 or 15)

**Age 2-17 Years**

- **GCS=14**
- **Or**
- Other signs of altered mental status (any of the following):
  - agitation
  - somnolence
  - repetitive questioning
  - slow response to verbal communication
- **Or**
- Signs of basilar skull fracture

**Yes**

4.3% risk of clinically important TBI

**CT Recommended**

**No**

- **History of LOC**
- **Or**
- **History of vomiting**
- **Or**
- Severe mechanism of injury (any of the following):
  - Motor vehicle crash (MVC) with patient ejection
  - MVC with death of another passenger
  - MVC with rollover
  - Pedestrian or bicyclist without helmet struck by a motorized vehicle
  - Falls of more than 1.5 m (5 feet)
  - Head struck by a high-impact object
- **Or**
- Severe headache

**Observation versus CT on the basis of other clinical factors including:**
- Physician experience
- Multiple versus isolated findings
  - (Patients with certain isolated findings such as isolated LOC, isolated headache, isolated vomiting, and certain types of isolated scalp hematomas in infants older than 3 months have a substantially lower than 1% risk of clinically important TBI)
- Worsening symptoms or signs during or after emergency department observation
- Parental preference

**Yes**

0.9% risk of clinically important TBI

**No**

< 0.05% risk of clinically important TBI

**CT generally not recommended**

The risk of clinically important TBI for these patients is exceedingly low, generally lower than the risk of CT-induced malignancies.