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 → **CT Recommended** — **4.3% risk of clinically important TBI**

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

YES → **0.9% risk of clinically important TBI**

NO → **< 0.05% risk of clinically important TBI**

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

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.

EMSC Emergency Medical Services for Children KANSAS

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.
2019 Version

FLIP FOR AGE 0-23 MONTHS

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 — **0.9% risk of clinically important TBI**

NO — **< 0.02% risk of clinically important TBI**

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

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.

EMSC Emergency Medical Services for Children KANSAS

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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FLIP FOR AGE 2-17 YEARS