

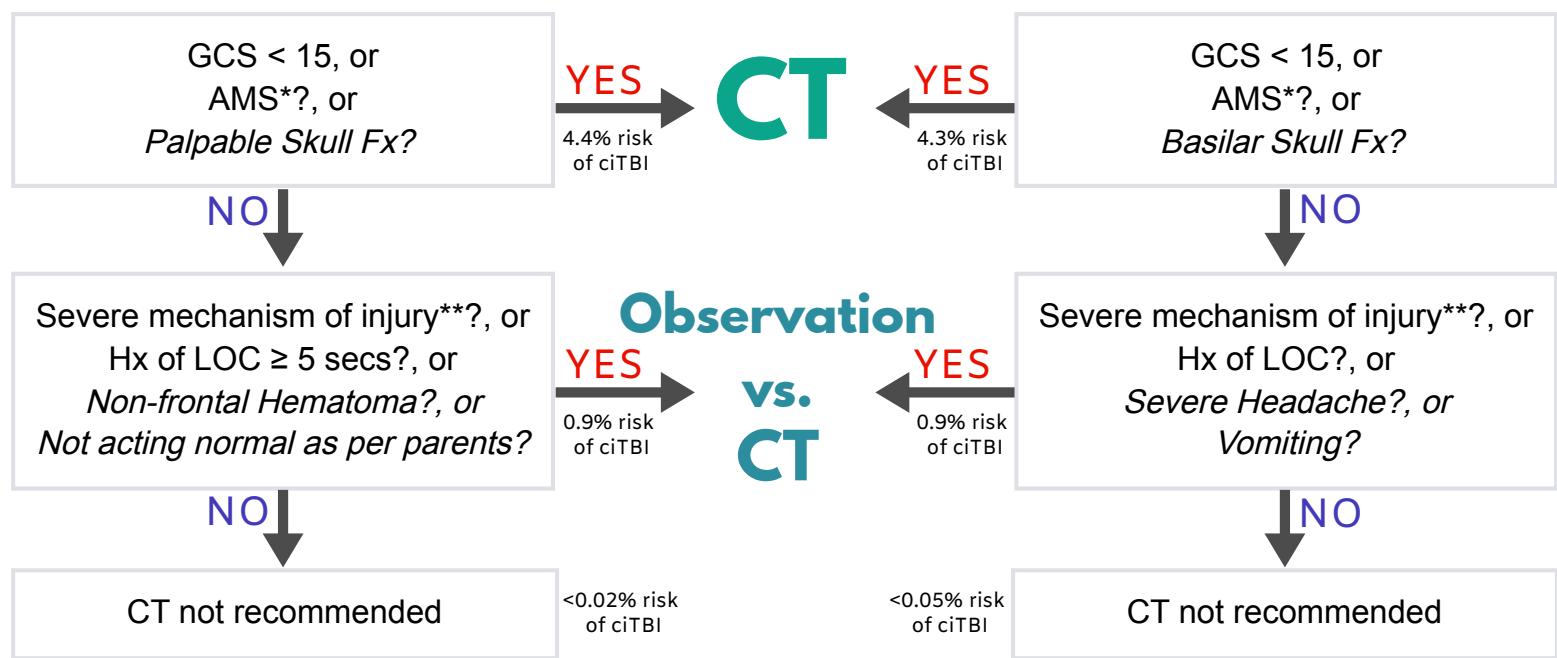


# Head Trauma

# PECARN Pediatric Head Injury Rule

Age < 2 years

Age  $\geq$  2 years



ciTBI: death from traumatic brain injury, neurosurgery, intubation >24 h, or hospital admission for 2 or more nights.

\* Other signs of AMS: agitation, somnolence, repetitive questioning, or slow response to verbal communication.

\*\* Severe mechanism of injury: motor vehicle crash with patient ejection, death of another passenger, or rollover; pedestrian or bicyclist without helmet struck by a motorized vehicle; falls of more than 0.9 meter (3 feet) for children < 2 years or more than 1.5 meter (5 feet) for children > 2 years; or head struck by a high-impact object.

## Neuro-Protective Measures:



- Avoid 2ry brain injury.
- Head elevation 30° degrees in neutral position.
- Hyperosmolar therapy.
- Maintain normocarbia (PaCO<sub>2</sub> 35-40).
- Avoid hypoxia and hypotension (SBP>75th percentile is associated with better outcome).
- Normothermia 36-37°C.
- Normoglycemia.
- Manage stimulus with good sedation, ↓ noise, ↓ pain & ↓ suctioning frequency.
- Prophylactic seizure Rx.

## CPP = MAP - ICP

CPP (Cerebral perfusion pressure) = 40 mmHg in infants, 50 mmHg in older children, 60 mmHg in young adult.  
MAP (Mean arterial pressure) according to age.  
ICP (Intracranial Pressure) = normally < 15 mmHg.

# Hyperosmolar Therapy

## 3% Hypertonic Saline

Bolus: 5 mL/kg IV over 10- 20 mins, repeat PRN.

Infusion: 0.1 - 1 mL/kg/hr

Target serum Na 145 - 155 mEq/L, Serum Osmolarity < 360 mOsm/L.

## Mannitol

0.25 - 1 g/kg IV  
over 20 mins for impending herniation.

Avoid in *hypotensive* patients.

