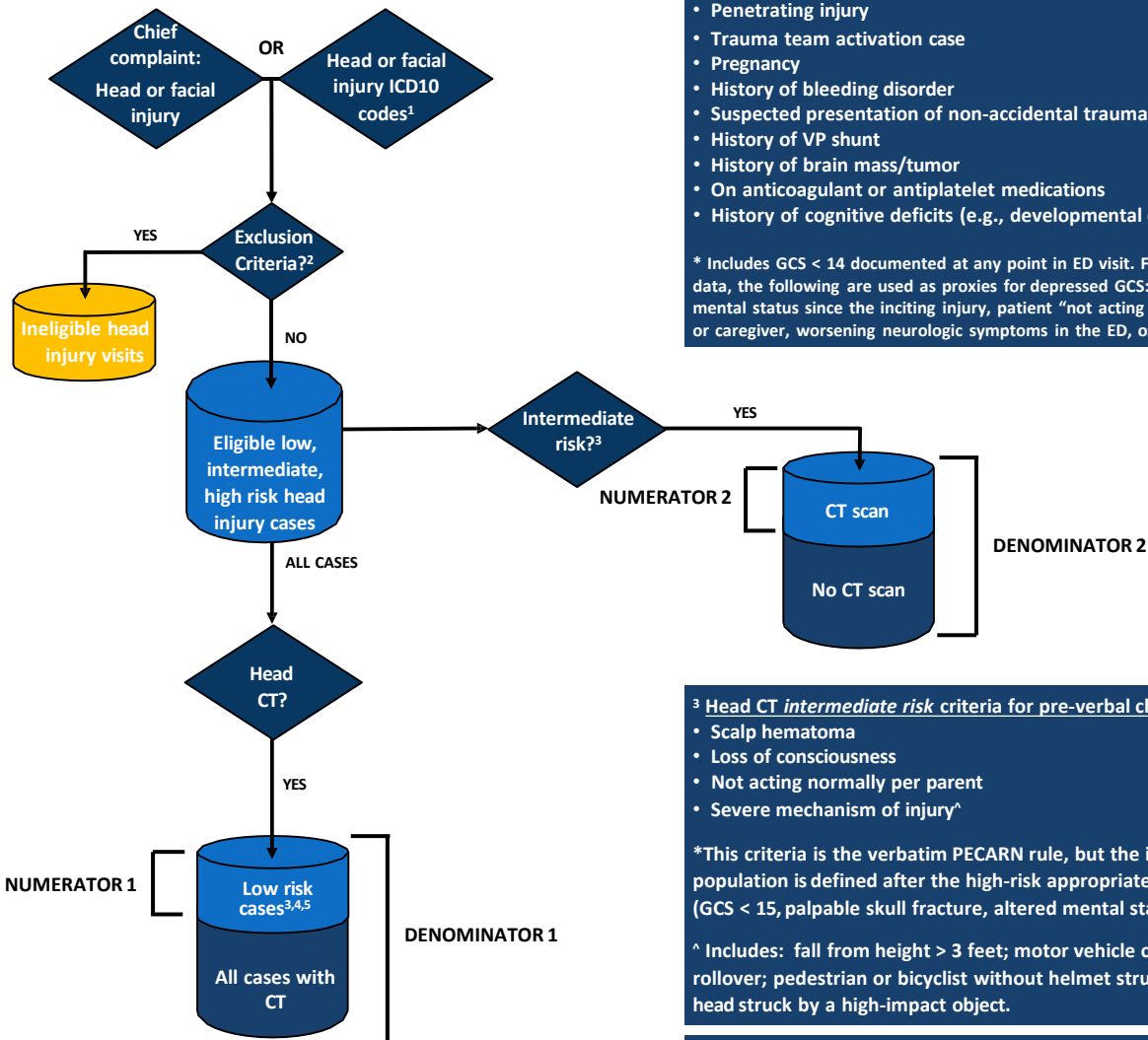


**MEDIC**

**Pediatric Head Injury Measure Specification Flow Diagram  
Ages < 2 years old (children)**

Reference: Kuppermann N, et al. Identification of children at very low risk of clinically-important brain injuries after head trauma: a prospective cohort study. *Lancet* 2009;374:1160-1170.



<sup>1</sup> Any ICD10 code for head or facial injury (> 400 codes; e.g., concussion, abrasion, contusion, laceration, fracture, etc.)

- <sup>2</sup> **Denominator exclusions:**
- GCS < 14\*
  - Injury > 24 hours
  - Penetrating injury
  - Trauma team activation case
  - Pregnancy
  - History of bleeding disorder
  - Suspected presentation of non-accidental trauma (abuse)
  - History of VP shunt
  - History of brain mass/tumor
  - On anticoagulant or antiplatelet medications
  - History of cognitive deficits (e.g., developmental delay)
- \* Includes GCS < 14 documented at any point in ED visit. For ED visits with missing GCS data, the following are used as proxies for depressed GCS: documentation of altered mental status since the inciting injury, patient “not acting normally” according to parent or caregiver, worsening neurologic symptoms in the ED, or evidence of intoxication.

- <sup>3</sup> **Head CT intermediate risk criteria for pre-verbal child (age < 2):\***
- Scalp hematoma
  - Loss of consciousness
  - Not acting normally per parent
  - Severe mechanism of injury<sup>^</sup>
- \*This criteria is the verbatim PECARN rule, but the intermediate risk population is defined after the high-risk appropriateness criteria are applied (GCS < 15, palpable skull fracture, altered mental status) as contained in box 4.
- <sup>^</sup> Includes: fall from height > 3 feet; motor vehicle crash with ejection, fatality, or rollover; pedestrian or bicyclist without helmet struck by a motorized vehicle; head struck by a high-impact object.

- <sup>4</sup> **Head CT high risk criteria for pre-verbal child (age < 2):\***
- GCS = 14<sup>^</sup>
  - Palpable skull fracture
  - Altered mental status<sup>@</sup>
- \* This criteria is the verbatim PECARN rule and defines the high-risk population.
- <sup>^</sup> For ED visits with missing GCS data, the following are used as proxies for depressed GCS: documentation of altered mental status since the inciting injury, patient “not acting normally” according to parent or caregiver, worsening neurologic symptoms in the ED, or evidence of intoxication.
- <sup>@</sup> Agitation, somnolence, slow response, repetitive questioning. For ED visits with concern for post-traumatic seizure, altered mental status is used as a proxy.

- <sup>5</sup> **Head CT low risk criteria for pre-verbal child (age < 2):**
- Any case that does not meet intermediate or high-risk criteria

**Head CT Overuse Measure:**

Quality initiative measure reported as: % overuse CT scans

Denominator 1 = ED visits of all eligible minor head injury patients receiving head CT (CPT 70450)

Numerator 1 = ED visits of eligible minor head injury patients with low-risk criteria receiving head CT (CPT 70450)

$$\% \text{ CT overuse} = \frac{\# \text{ low-risk cases w/ CT}}{\text{total \# CTs performed}}$$

**Intermediate Risk Head CT Utilization Measure:**

Quality initiative measure reported as: % intermediate risk group with CT scans

Denominator 2 = ED visits of eligible minor head injury patients with intermediate risk criteria

Numerator 2 = ED visits of intermediate risk group receiving head CT (CPT 70450)

$$\% \text{ CT utilization} = \frac{\# \text{ intermediate risk cases w/ CT}}{\text{total \# intermediate risk cases}}$$