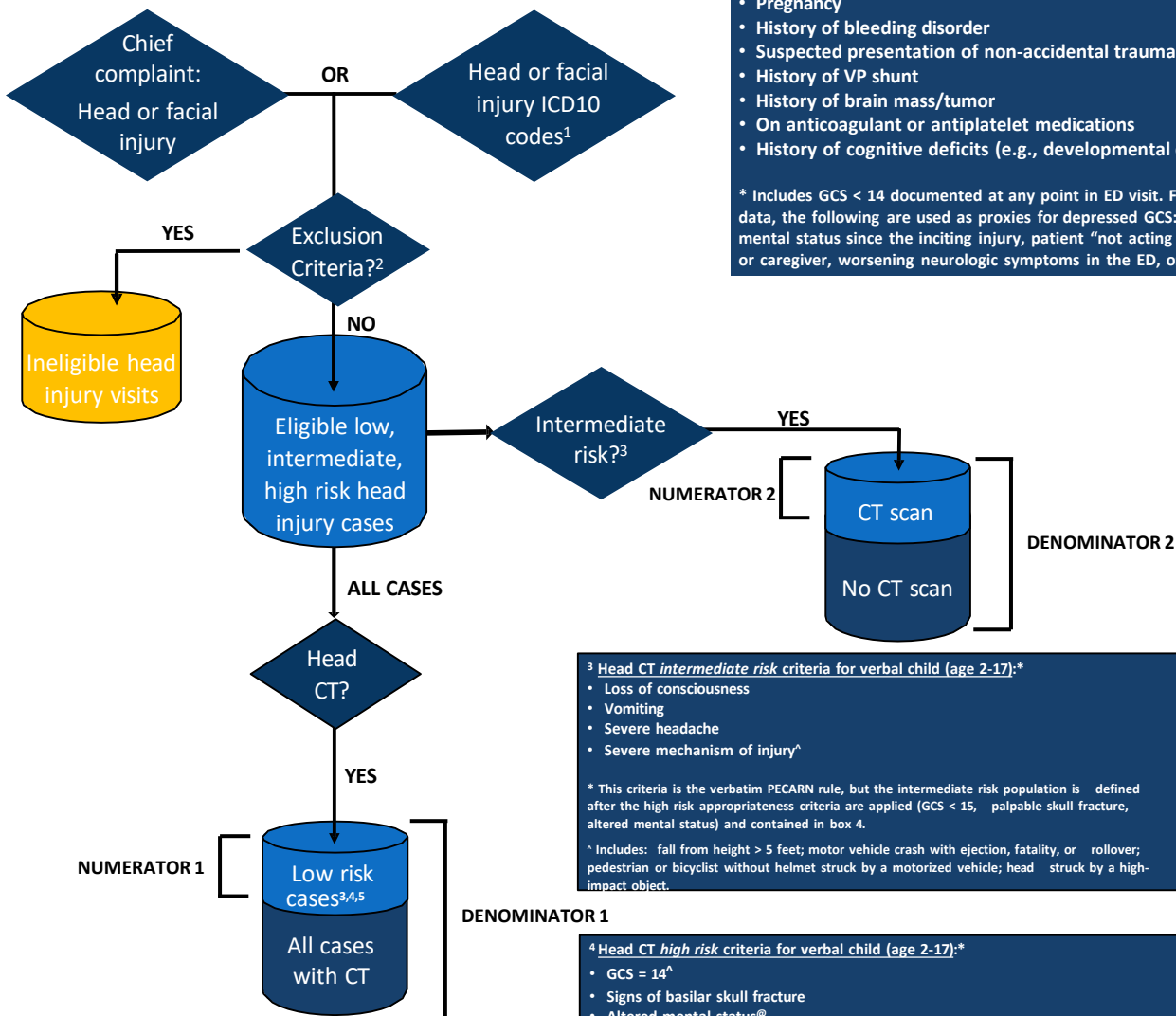


MEDIC
Pediatric Head Injury Measure Specification Flow Diagram
Ages 2-17 years old (children)

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.



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

- ² **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.

- ³ **Head CT intermediate risk criteria for verbal child (age 2-17):***
- Loss of consciousness
 - Vomiting
 - Severe headache
 - Severe mechanism of injury[^]
- * 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) and contained in box 4.
- [^] Includes: fall from height > 5 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.

- ⁴ **Head CT high risk criteria for verbal child (age 2-17):***
- GCS = 14[^]
 - Signs of basilar skull fracture
 - Altered mental status[@]
- * This criteria is the verbatim PECARN rule and defines the high risk population.
- [^] 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.
- [@] Agitation, somnolence, slow response, repetitive questioning.

- ⁵ **Head CT low risk criteria for verbal child (age 2-17):**
- 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)

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