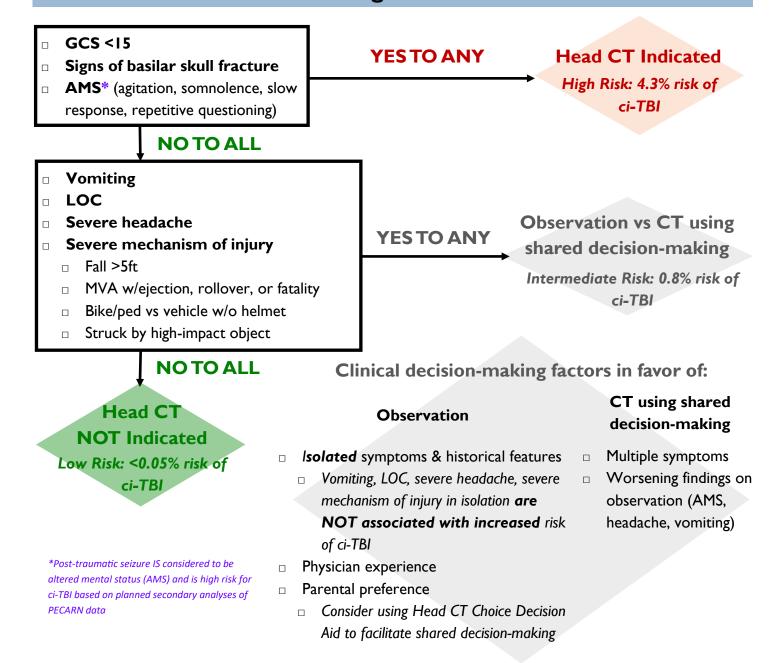
PECARN Pediatric Minor Head Injury CT Guidelines for Children Age 2+ Years



Badawy, M. K., et al. Prevalence of Brain Injuries and Recurrence of Seizures in Children with Posttraumatic Seizures. Academic Emergency Medicine. 2017;24(5):595-605.

Ballard DW, Kuppermann N, Vinson DR, et al. Implementation of a Clinical Decision Support System for Children With Minor Blunt Head Trauma Who Are at Nonnegligible Risk for Traumatic Brain Injuries. Annals of Emergency Medicine. 2019;73(5):440-451.

Dayan PS, Holmes JF, Atabaki S, et al. Association of Traumatic Brain Injuries With Vomiting in Children With Blunt Head Trauma. Annals of Emergency Medicine. 2014;63(6):657-665. Dayan PS, Holmes JF, Hoyle J, et al. Headache in Traumatic Brain Injuries From Blunt Head Trauma. Pediatrics. 2015;135(3):504-512.

Dayan PS, Holmes JF, Schutzman S, et al. Risk of Traumatic Brain Injuries in Children Younger than 24 Months With Isolated Scalp Hematomas. Annals of Emergency Medicine. 2014;64 (2):153-162.

Hess EP, Homme JL, Kharbanda AB, et al. Effect of the Head Computed Tomography Choice Decision Aid in Parents of Children With Minor Head Trauma. JAMA Network Open. 2018;1(5). Kuppermann N, Holmes JF, Dayan PS, et al. Identification of children at very low risk of clinically-important brain injuries after head trauma: a prospective cohort study. The Lancet. 2009:374(9696):1160-1170.

Lee LK, Monroe D, Bachman MC, et al. Isolated Loss of Consciousness in Children With Minor Blunt Head Trauma. JAMA Pediatrics. 2014;168(9):837. doi:10.1001/jamapediatrics.2014.361. Nigrovic LE, Lee LK, Hoyle J, et al. Prevalence of Clinically Important Traumatic Brain Injuries in Children With Minor Blunt Head Trauma and Isolated Severe Injury Mechanisms. Arch Pediatr Adolesc Med. 2012;166(4):356–361.

Varano P, Cabrera KI, Kuppermann N, Dayan PS. Acute outcomes of isolated cerebral contusions in children with Glasgow Coma Scale scores of 14 to 15 after blunt head trauma. Journal of Trauma and Acute Care Surgery. 2015;78(5):1039-1043.

PECARN Pediatric Minor Head Injury CT Guidelines for Children Age <2 Years

- GCS <15
 Palpable skull fracture
 AMS* (agitation, somnolence, slow response, repetitive questioning)
 NO TO ALL
 Scalp hematoma (excluding frontal)
 LOC >5 seconds

 Head CT Indicated
 High Risk: 4.4% risk of
 ci-TBI
 - LOC >5 seconds
 Not acting normally per parent
 Severe mechanism of injury
 Fall >3ft
 - MVA w/ejection, rollover, or fatalityBike/ped vs vehicle w/o helmet
 - □ Struck by high-impact object

Observation vs CT using shared decision-making

Intermediate Risk: 0.9% risk of ci-TBI

NOTO ALL

Clinical decision-making factors in favor of:

Head CT NOT Indicated

Low Risk: <0.02% risk of ci-TBI

*Post-traumatic seizure IS considered to be altered mental status (AMS) and is high risk for ci-TBI based on planned secondary analyses of PECARN data

Observation

YESTO ANY

- Isolated symptoms & historical features
 - Scalp hematoma, LOC, not acting normally per parent, severe mechanism of injury in isolation are NOT associated with increased risk of ci-TBI
- Physician experience
- Parental preference
 - Consider using Head CT Choice Decision
 Aid to facilitate shared decision-making

CT using shared decision-making

- Multiple symptoms
- Worsening findings on observation (AMS, headache, vomiting)
- <3 months old

Badawy, M. K., et al. Prevalence of Brain Injuries and Recurrence of Seizures in Children with Posttraumatic Seizures. Academic Emergency Medicine. 2017;24(5):595-605.

Ballard DW, Kuppermann N, Vinson DR, et al. Implementation of a Clinical Decision Support System for Children With Minor Blunt Head Trauma Who Are at Nonnegligible Risk for Traumatic Brain Injuries. Annals of Emergency Medicine. 2019;73(5):440-451.

Dayan PS, Holmes JF, Atabaki S, et al. Association of Traumatic Brain Injuries With Vomiting in Children With Blunt Head Trauma. Annals of Emergency Medicine. 2014;63(6):657-665. Dayan PS, Holmes JF, Hoyle J, et al. Headache in Traumatic Brain Injuries From Blunt Head Trauma. Pediatrics. 2015;135(3):504-512.

Dayan PS, Holmes JF, Schutzman S, et al. Risk of Traumatic Brain Injuries in Children Younger than 24 Months With Isolated Scalp Hematomas. Annals of Emergency Medicine. 2014;64 (2):153-162.

Hess EP, Homme JL, Kharbanda AB, et al. Effect of the Head Computed Tomography Choice Decision Aid in Parents of Children With Minor Head Trauma. JAMA Network Open. 2018;1(5). Kuppermann N, Holmes JF, Dayan PS, et al. Identification of children at very low risk of clinically-important brain injuries after head trauma: a prospective cohort study. The Lancet. 2009;374(9696):1160-1170.

Lee LK, Monroe D, Bachman MC, et al. Isolated Loss of Consciousness in Children With Minor Blunt Head Trauma. JAMA Pediatrics. 2014;168(9):837. doi:10.1001/jamapediatrics.2014.361. Nigrovic LE, Lee LK, Hoyle J, et al. Prevalence of Clinically Important Traumatic Brain Injuries in Children With Minor Blunt Head Trauma and Isolated Severe Injury Mechanisms. Arch Pediatr Adolesc Med. 2012;166(4):356–361.

Varano P, Cabrera KI, Kuppermann N, Dayan PS. Acute outcomes of isolated cerebral contusions in children with Glasgow Coma Scale scores of 14 to 15 after blunt head trauma. Journal of Trauma and Acute Care Surgery. 2015;78(5):1039-1043.



