

Figure 1 Paediatric Emergency Care Applied Research Network (PECARN) Head Injury Decision Rule

Risk factors for intracranial injury			
All children	Age <2 years	Age >2 years	
GCS 14 or other signs of altered mental status Abnormal neurological examination Severe mechanism of injury* Post-traumatic seizures	Palpable skull fracture Non-frontal scalp haematoma History of loss of consciousness ≥5 seconds Acting abnormally per parent	Signs of base of skull fracture History of loss of consciousness History of vomiting** Severe headache	
Any risk factors: Recommended observation period is up to 4 hours post injury including 1 hour return to normal			
High risk = imaging	Intermediate risk = consider imaging or structured observation	Low risk	Very low risk
Palpable skull fracture OR Signs of base of skull fracture OR Worsening signs or symptoms OR Persistent GCS 14 OR Persistent signs of altered mental status	≥ 2 risk factors OR Post-traumatic seizure(s) OR Persistent severe headache or persistent vomiting >4 hours post injury	Not intermediate or high risk AND improving signs and symptoms: GCS 15, acting normally, no current signs of altered mental status, vomiting has stopped, severe headache resolved	No risk factors

Notes:

- * Struck by a motor vehicle, occupant ejected from a motor vehicle or death of another passenger, motor vehicle rollover; bicyclist without helmet struck by motorised vehicle; falls of 1 m or more for children aged less than 2 years and more than 1.5 m for children aged 2 years or older; or head struck by a high-impact object).
- ** Isolated vomiting, without any other risk factors, is an uncommon presentation of more severe forms of traumatic brain injury. Vomiting, regardless of the number of vomits or persistence of vomiting, in association with other risk factors increases concern for more severe forms of traumatic brain injury.

Source: Adapted from PREDICT and Kuppermann N, Holmes JF, Dayan PS, Hoyle JD, Jr., Atabaki SM, Holubkov R, et al. Identification of Children at Very Low Risk of Clinically-Important Brain Injuries after Head Trauma: A Prospective Cohort Study. *Lancet*. 2009;374(9696):1160–70.