CHALICE

Algorithm:

The children's head injury algorithm for the prediction of important clinical events rule

A computed tomography scan is required if any of the following criteria are present.
• **History**
  ▪ Witnessed loss of consciousness of >5 min duration.
  ▪ History of amnesia (either antegrade or retrograde) of >5 min duration.
  ▪ Abnormal drowsiness (defined as drowsiness in excess of that expected by the examining doctor).
  ▪ ≥3 vomits after head injury (a vomit is defined as a single discrete episode of vomiting).
  ▪ Suspicion of non-accidental injury (NAI, defined as any suspicion of NAI by the examining doctor).
  ▪ Seizure after head injury in a patient who has no history of epilepsy.
• **Examination**
  ▪ Glasgow Coma Score (GCS) <14, or GCS<15 if <1 year old.
  ▪ Suspicion of penetrating or depressed skull injury or tense fontanelle.
  ▪ Signs of a basal skull fracture (defined as evidence of blood or cerebrospinal fluid from ear or nose, panda eyes, Battles sign, haemotympanum, facial crepitus or serious facial injury).
  ▪ Positive focal neurology (defined as any focal neurology, including motor, sensory, coordination or reflex abnormality).
  ▪ Presence of bruise, swilling or laceration >5 cm if <1 year old.
• **Mechanism**
  ▪ High-speed road traffic accident either as pedestrian, cyclist or occupant (defined as accident with speed >40 m/h).
  ▪ Fall of >3 m in height.
  ▪ High-speed injury from a projectile or an object.
 	
If none of the above variables are present, patient is at low risk of intracranial pathology

Inclusions:

(all must be satisfied for CHALICE to be applied)

- Patients less than 16 years old with a history or signs of injury to head
- Loss of consciousness or amnesia not a requirement

Exclusions: None

Summary Statement:

The CHALICE clinical decision rule aims to determine which children with head injuries of any severity require a CT scan of the head.

The CHALICE decision rule is for paediatric patients presenting acutely with head trauma. A validation study is yet to be performed. Many of the variables listed in the algorithm rely on the clinician's judgement and the accuracy of the information provided by the witness, both of which could be biased by problems with recall and interobserver disagreement due to subjectivity of the CDR elements. This could in turn affect the decision to perform a CT scan. In future validation studies, it would be useful to test reproducibility. The rule has been shown to be sensitive at predicting patients who will either: die from their intracranial injuries; need neurosurgical intervention; or have an intracranial injury on CT scan but required only observation and supportive treatment.

Reference:

Dunning J, Daly JP, Lomas JP, Lecky F, Batchelor J, Mackway-Jones K. Derivation of the children's head injury algorithm for the prediction of important clinical events decision rule for head injury in children. *Arch Dis Child*. 2006; 91(11): 885-91.