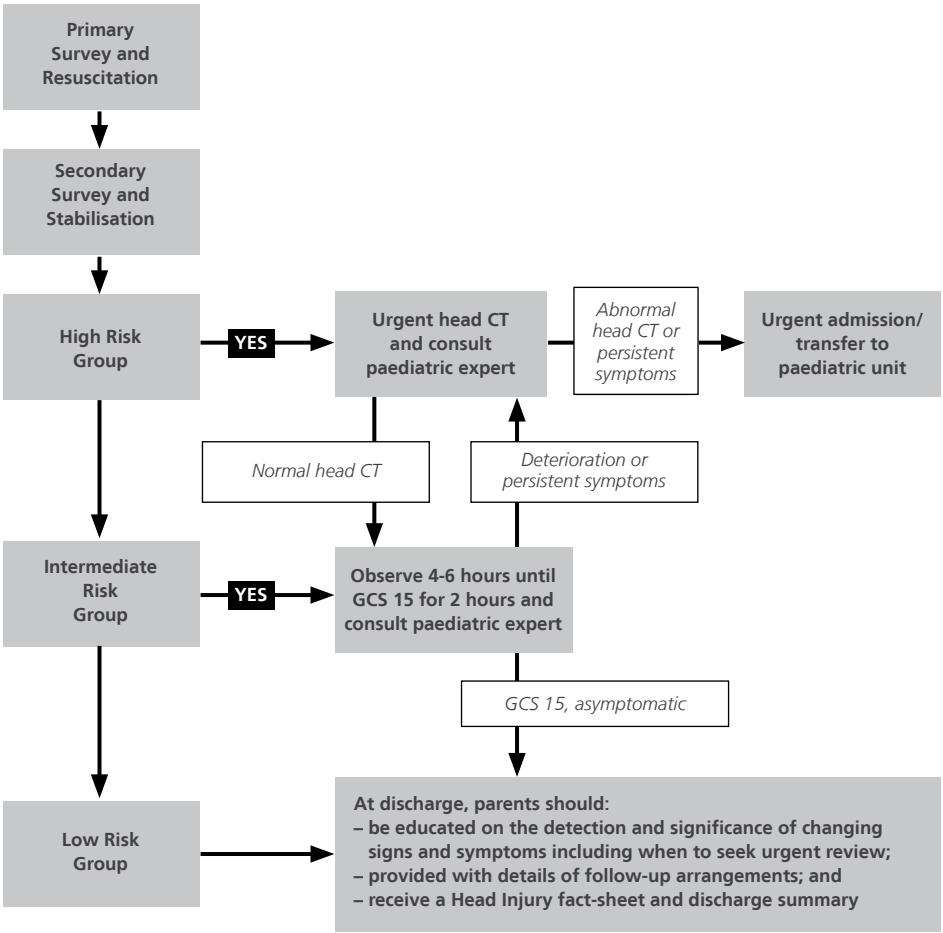
Overview: Management of head injury in children



For definitions of High / Intermediate / Low risk groups see following table.

Table 1: Risk groups in head injury

	LOW RISK (All features)	**INTERMEDIATE RISK** (Any feature / not low or high risk)	**HIGH RISK** (CHALICE Criteria) (Any feature)
HISTORY			
Witnessed loss of consciousness	nil	<5 minutes	>5 minutes
Anterograde or retrograde amnesia	nil	possible	>5 minutes
Behaviour	normal	mild agitation or altered behaviour	abnormal drowsiness
Episodes of vomiting without other cause	nil or 1	2 or persistent nausea	3 or more
Seizure in non-epileptic patient	nil	impact only	yes
Non accidental injury (NAI) suspected	no	no	yes
Headache	nil	persistent	persistent
Co-morbidities	nil	present	present
Age	>1yr	<1yr	Any
MECHANISM			
Motor Vehicle Accident (MVA) (pedestrian, cyclist or occupant)	low speed	<60kmph	>60kmph
Fall	<1m	1-3m	>3m
Force	low impact	moderate impact or unclear mechanism	high speed projectile or object
EXAMINATION			
Glasgow Coma Scale (GCS)	15	fluctuating 14 - 15	<14 or <15 if under 1 yr old
Focal neurological abnormality	nil	nil	present
Injury			*high risk features eg scalp haematoma in <1yr of age (see below)
* High risk injury: a)penetrating injury, or suspected depressed skull fracture or base of skull fracture b)scalp bruise, swelling or laceration>5cm, or tense fontanelle in infants <1yr of age			
PLACEMENT			
Observation Area	Anywhere in ED	Acute area in ED	Acute or resuscitation bay
OBSERVATIONS			
• Respiratory rate, oxygen saturations • Pulse, blood pressure • Temperature • GCS, pupillary response & size, limb strength • Pain assessment • Sedation score as necessary	Hourly observations until discharge	Half-hourly observations for 4 to 6 hours until GCS 15 sustained for 2 hours, then hourly observations until discharge. **Revert to half hourly observations/ continuous monitoring if signs of deterioration occur.**	• Continuous cardio-respiratory and oxygen saturation monitoring • BP and GCS every 15 to 30 minutes

Appendix Two – Glasgow Coma Scale and Children's Coma Scale

Glasgow Coma Scale (4-15 years)

Eye opening response	
Spontaneously	4
To verbal stimuli	3
To pain	2
No response to pain	1

Best motor response	
Obeys verbal command	6
Localises to pain	5
Withdraws from pain	4
Abnormal flexion to pain (decorticate)	3
Abnormal extension to pain (decerebrate)	2
No response to pain	1

Best verbal response	
Oriented and converses	5
Disoriented and converses	4
Inappropriate words	3
Incomprehensible sounds	2
No response to pain	1
No response to pain	1

Child's Coma Scale (<4 Years)

Eye opening response	
Spontaneously	4
To verbal stimuli	3
To pain	2
No response to pain	1

Best motor response	
Obeys verbal command or performs normal spontaneous movements	6
Localises to pain or withdraws to touch	5
Withdraws from pain	4
Abnormal flexion to pain (decorticate)	3
Abnormal extension to pain (decerebrate)	2
No response to pain	1

Best verbal response	
Alert, babbles, coos, words or sentences to usual ability	5
Less than usual ability and/or spontaneous irritable cry	4
Cries inappropriately	3
Occasionally whimpers and/or moans	2
No response to pain	1
No response to pain	1

Ref: APLS 4th Edition 2005 [10]