Head Injury Pathway

Clinical Assessment/ Management tool for Children

Management - Primary Care and Community Settings

Patient presents

Suspected/ Observed Head Injury?

History:

- When? Mechanism of injury?
- Loss of consciousness ? Vomiting? Fitting? Persisting dizziness?
- Amnesia (anterograde /retrograde)?
- Worsening headache
- Clotting disorder

Examination:

- Assess conscious level - GCS (see table 2) or AVPU
- Confused or repetitive speech?
- Skull integrity (bruises; wounds; boggy swelling) + fontanelle assessment
- Signs of base of skull fracture
- Signs of focal neurology
- Cervical spine
- If under 3 years, undress and examine fully

Do the symptoms and/or signs suggest an immediately life threatening injury? (see table 1)

Yes

Refer immediately to emergency care by **999**
Alert emergency department
Stay with child whilst waiting and prepare documentation

Are there **safeguarding concerns** (e.g. delay in presentation; injury not consistent with history or age/ developmental stage of child)?

Concern

Contact child protection / social services team

Table 1

	Green - low risk	Amber - intermediate risk	Red - high risk
Nature of injury and conscious level	• Low risk mechanism of injury • No loss of consciousness • Child cried immediately after injury • Alert, interacting with parent, easily rousable • Behaviour considered normal by parent	• Mechanism of injury: fall from a height > 1m or greater than child's own height • Alert but irritable and/or altered behaviour	• Mechanism of injury: considered dangerous (high speed road traffic accident; >3m fall) • GCS < 15 / altered level of consciousness • Witnessed loss of consciousness lasting > 5mins • Persisting abnormal drowsiness • Post traumatic seizure
Symptoms & Signs	• No more than 2 episodes of vomiting (>10 minutes apart) • Minor bruising or minor cuts to the head	• 3 or more episodes of vomiting (>10 minutes apart) • Persistent or worsening headache • Amnesia or repetitive speech • A bruise, swelling or laceration of any size should be considered as dangerous	• Skull fracture – open, closed or depressed • Tense fontanelle (infants) • Signs of basal skull fracture (haemotypanum, 'panda' eyes, CSF leakage from ears/ nose; Battle's sign (mastoid ecchymosis) • Focal neurological deficit
Other		• Clotting disorder • Additional parent/carer support required	

Green Action

- Provide written and verbal advice (see advice sheet)
- If concussion, provide advice about graded return to normal activities (see figure 1)
- Think "safeguarding" before sending home

Amber Action

- Send to ED for further assessment

Urgent Action

- Refer immediately to emergency care by 999
- Alert ED team
- Treat and stabilise in preparation for hospital transfer

GMC Best Practice recommends: Record your findings (See "Good Medical Practice" http://bit.ly/1DPXl2b)

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Table 2: Modified Glasgow Coma Scale for Infants and Children

	Child	Infant	Score
Eye opening	Spontaneous	Spontaneous	4
	To speech	To speech	3
	To pain only	To pain only	2
	No response	No response	1
Best verbal response	Oriented, appropriate	Coos and babbles	5
	Confused	irritable cries	4
	Inappropriate words	Cries to pain	3
	Incomprehensible sounds	Moans to pain	2
	No response	No response	1
Best motor response*	Obey commands	Moves spontaneously and purposefully	6
	Localises painful stimulus	Withdraws to touch	5
	Withdraws in response to pain	Withdraws to response in pain	4
	Flexion in response to pain	Abnormal flexion posture to pain	3
	Extension in response to pain	Abnormal extension posture to pain	2
	No response	No response	1

* If patient is intubated, unconcious, or preverbal, the most important part of this scale is motor response. Motor response should be carefully evaluated.

Glossary of Terms	
ABC	Airways, Breathing, Circulation
APLS	Advanced Paediatric Life Support
AVPU	Alert Voice Pain Unresponsive
B/P	Blood Pressure
CPD	Continuous Professional Development
CRT	Capillary Refill Time
ED	Hospital Emergency Department
GCS	Glasgow Coma Scale
HR	Heart Rate
MOI	Mechanism of Injury
PEWS	Paediatric Early Warning Score
RR	Respiratory Rate
WBC	White Blood Cell Count

Figure 2: suggested graded recovery regime following concussion (taken from BMJ 2016; 355 doi: https://doi.org/10.1136/bmj.i5629 (Published 16 November 2016)