PAEDIATRIC HEAD INJURY GUIDELINE

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Target Audience: Doctors, nurses and support staff working in Paediatrics

Impact Assessment Carried Out By:

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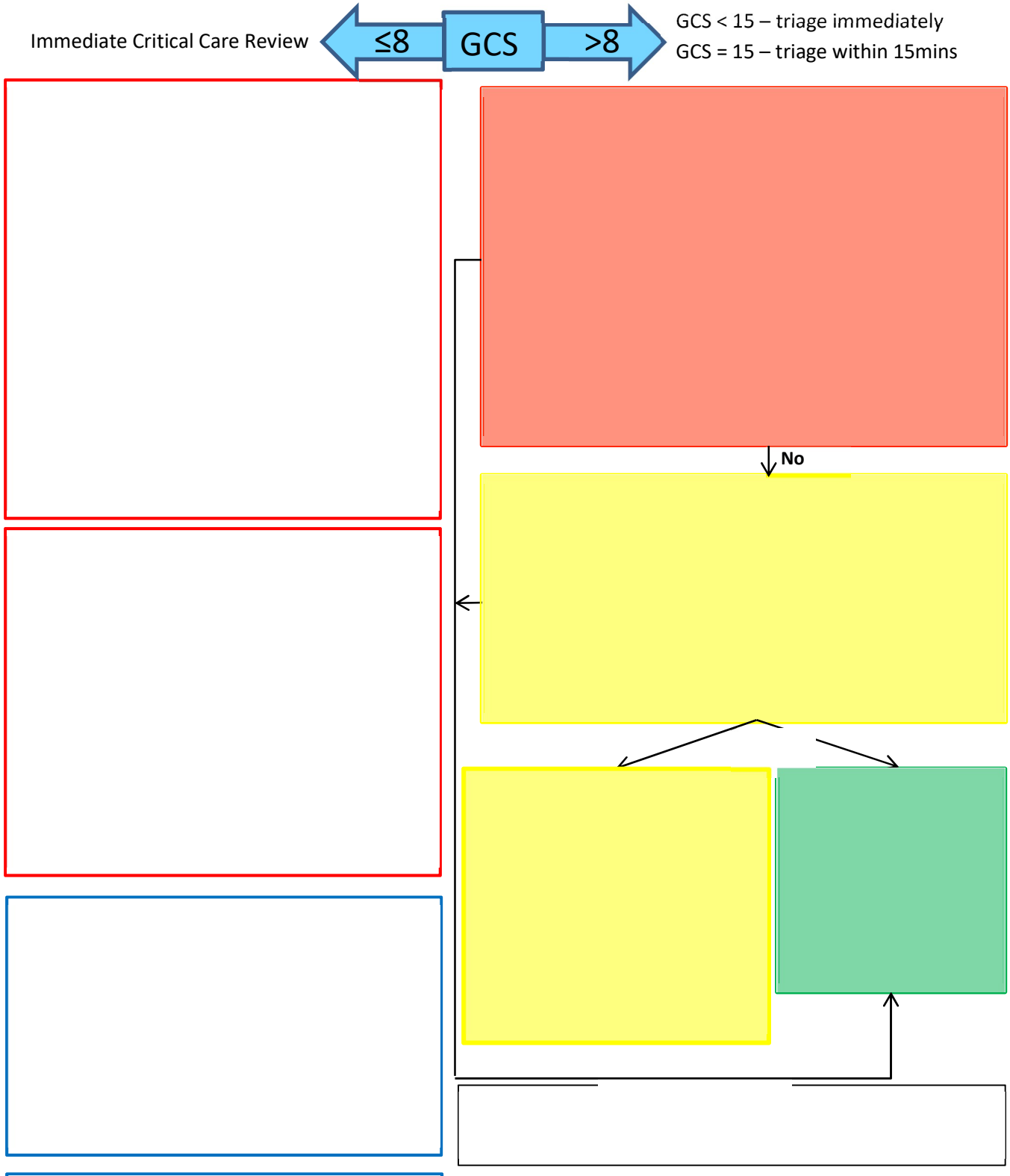
HEAD INJURY ASSESSSMENT AND EARLY MANAGEMENT



Paediatric GCS (for children ≤2yrs old):

Eyes:	Verbal:	Motor:
4 Open spontaneously	5 Coos, babbles	6 Moves spontaneously, purposefully
3 Open to verbal stimuli	4 Irritable cry	5 Withdraws to touch
2 Open to pain only	3 Cries in response to pain	4 Withdraws to pain
1 No response	2 Moans in response to pain	3 Flexor posturing to pain
	1 No response	2 Extensor posturing to pain
		1 No response

When to perform a CT of cervical spine in children

The threshold for CT C-spine is higher in children compared to adults because of the increased risk to the thyroid gland from ionising radiation and the generally lower risk of significant spinal injury.
Perform a CT cervical spine within 1 hour if any one of the following apply:

- GCS <13 on initial assessment
- Intubated and ventilated
- Focal peripheral neurological signs
- Paraesthesia in the upper or lower limbs
- Definitive diagnosis of C-spine injury is needed urgently (eg. before surgery)
- Patient is having other body areas scanned for head injury or multi-region trauma
- Strong suspicion of injury despite normal X-rays
- Plain X-rays are technically difficult or inadequate
- Plain X-rays identify a significant bony injury

Provisional radiology report should be ready within 1 hour of the scan being performed.

If clinical concerns of C-spine injury (eg. persisting peripheral neurology) despite normal X-rays and CT C-spine, MRI should be considered to look for soft tissue injury ie. SCIWORA – spinal cord injury without radiological abnormality.

When to perform cervical spine X-rays in children

For children who have had a head injury and have neck pain or tenderness but no indications for a CT C-spine, perform 3-view cervical spine X-rays before assessing range of movement in the neck if either of these risk factors are identified:

- Safe assessment of range of movement in the neck is not possible (see box below)
- Dangerous mechanism of injury including:
    - fall from a height greater than 1 metre or 5 stairs
    - axial load to the head eg. diving
    - high-speed motor vehicle collision
    - rollover motor accident
    - ejection from a motor vehicle
    - accident involving motorised recreational vehicles
    - bicycle collision

If, on safe assessment range of neck movement, the child cannot actively rotate their neck 45^{o} to the left and right, perform 3-view cervical spine X-rays.

The X-rays should be carried out within 1 hour of the risk factor being identified and reviewed by a clinician trained in their interpretation within 1 hour of being performed.

When to assess range of neck movement in children

Range of movement in the neck can be assessed safely before imaging only if there are no high-risk factors for cervical spine CT or X-rays (see above) and at least one of the following low-risk features apply:

- was involved in a simple rear-end motor vehicle collision
- is comfortable in a sitting position in the emergency department
- has been ambulatory at any time since injury
- has no midline cervical spine tenderness
- presents with delayed onset of neck pain.

On assessment, if the child cannot actively rotate their neck 45^{o} to the left and right, perform 3-view cervical spine X-rays.

References:

- **Head injury: assessment and early management. NICE guidelines [CG176]. Published January 2014, Updated 2019.**
- Expert opinion of local neurosurgical referral centre, St George's Hospital, London, UK
- APLS UK 6th Edition