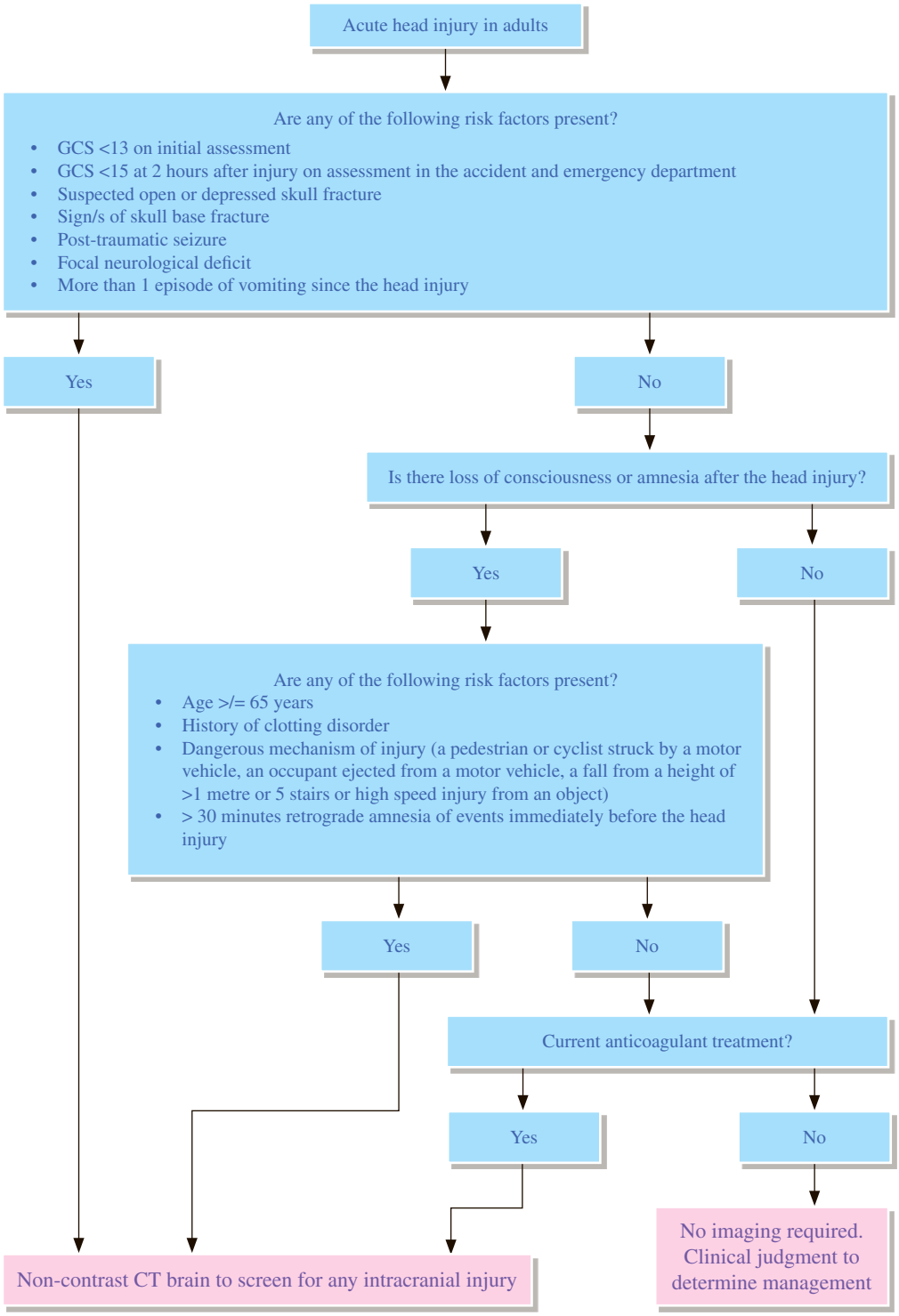
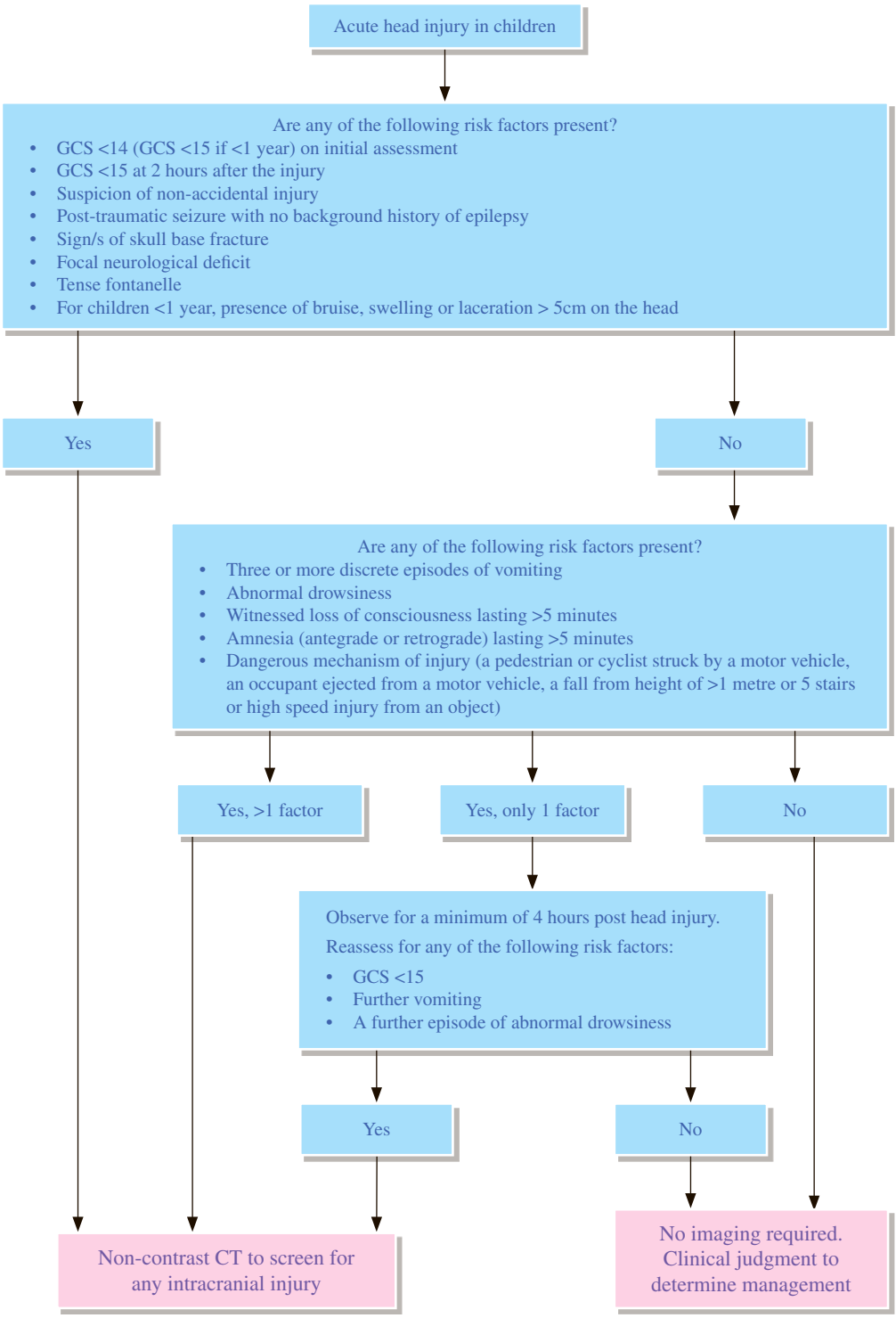
NR 1 Acute head injury




Acute head injury in children
Are any of the following risk factors present?
• GCS <14 (GCS <15 if <1 year) on initial assessment
• GCS <15 at 2 hours after the injury
• Suspicion of non-accidental injury
• Post-traumatic seizure with no background history of epilepsy
• Sign/s of skull base fracture
• Focal neurological deficit
• Tense fontanelle
• For children <1 year, presence of bruise, swelling or laceration > 5cm on the head
Yes
No
Are any of the following risk factors present?
• Three or more discrete episodes of vomiting
• Abnormal drowsiness
• Witnessed loss of consciousness lasting >5 minutes
• Amnesia (antegrade or retrograde) lasting >5 minutes
• Dangerous mechanism of injury (a pedestrian or cyclist struck by a motor vehicle, an occupant ejected from a motor vehicle, a fall from height of >1 metre or 5 stairs or high speed injury from an object)
Yes, >1 factor
Yes, only 1 factor
No
Observe for a minimum of 4 hours post head injury.
Reassess for any of the following risk factors:
• GCS <15
• Further vomiting
• A further episode of abnormal drowsiness
Yes
No
Non-contrast CT to screen for any intracranial injury
No imaging required. Clinical judgment to determine management

REMARKS

1 General

1.1 It is the clinical condition of the patient that determines whether imaging is required or not.

1.2 Patients discharged from accident and emergency department after head injury should be given advice in verbal and written formats, which is also to be shared with their families and carers.

2 Plain radiograph

2.1 Normal skull x-ray (SXR) does not exclude intracranial pathology.

2.2 SXR is only useful for imaging for calvarial fractures, penetrating injuries and suspected radiopaque foreign bodies.

3 CT

3.1 Non-contrast CT scan is the imaging modality of choice in evaluating head trauma.

3.2 In most cases, CT alone is sufficient to end the diagnostic imaging work up.

3.3 Early and repeated CT scanning may be required for further evaluation when there is deterioration (especially in the first 72 hours after head injury), to detect delayed haematoma, hypoxic-ischaemic lesions or cerebral oedema.

4 MRI

4.1 MRI is inappropriate as first line study in acute head trauma.

4.2 MRI is valuable as a problem solving tool in selected cases, such as in the following settings:

- 4.2.1 Hypoxic-ischaemic encephalopathy
- 4.2.2 Brain stem contusion (haemorrhagic / non-haemorrhagic)
- 4.2.3 Diffuse axonal injury
- 4.2.4 Small subdural haematoma

REFERENCES

1. National Institute for Health and Care Excellence (2014) Head Injury: assessment and early management. NICE guideline (CG176).
2. Shetty VS, Reis MN, Aulino JM, et al. ACR Appropriateness Criteria® Head Trauma. Available at https://acsearch.acr.org/docs/69481/Narrative/. American College of Radiology. Accessed 2017 April 4.