SIGN

Early management of head injury

Quick Reference Guide

ASSESSMENT AND CLASSIFICATION

B The management of head injured patients should be guided by clinical assessments and protocols based on the Glasgow Coma Scale and Glasgow Coma score.

The Glasgow Coma Scale is difficult to apply to the young (under 5 years) child. Great care needs to be taken in interpretation and this should be done by those with experience in managing young children.

FEATURE	SCALE RESPONSES	SCORE
Eye opening	Spontaneous	4
	To speech	3
	To pain	2
	None	1
Verbal response	Orientated	5
	Confused conversation	4
	Words *(inappropriate)*	3
	Sounds *(incomprehensible)*	2
	None	1
Best motor response	Obey commands	6
	Localise pain	5
	Flexion *(normal)*	4
	Flexion *(abnormal)*	3
	Extend	2
	None	1
TOTAL COMA 'SCORE'		**3/15 - 15/15**

INDICATIONS FOR REFERRAL TO HOSPITAL

B **A head injured patient should be referred to hospital if *any* of the following is present:**

- **Impaired consciousness (GCS <15/15) at any time since injury**
- **Amnesia for the incident or subsequent events**
- **Neurological symptoms**, e.g.
  - severe and persistent headache
  - nausea and vomiting
  - irritability or altered behaviour
  - seizure
- **Clinical evidence of a skull fracture** (e.g. CSF leak, periorbital haematoma)
- **Significant extracranial injuries**
- **A mechanism of injury suggesting:**
  - a high energy injury (e.g. road traffic accident, fall from height)
  - possible penetrating brain injury
  - possible non-accidental injury (in a child)
- **Continuing uncertainty about the diagnosis after first assessment**
- **Medical co-morbidity** (e.g. anticoagulant use, alcohol abuse)
- **Adverse social factors** (e.g. no-one able to supervise the patient at home).

INDICATIONS FOR NEUROSURGICAL OPINION

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- CT shows a **recent intracranial lesion**
- Patient fulfils the criteria for CT scan but this cannot be done within an appropriate period
- **Persisting coma** (GCS score 8/15 or less) after initial resuscitation
- **Confusion** which persists for more than 4 hours
- **Deterioration in level of consciousness** after admission
- **Progressive focal neurological signs**
- A **seizure** without full recovery
- **Depressed skull fracture**
- Definite or suspected **penetrating injury**

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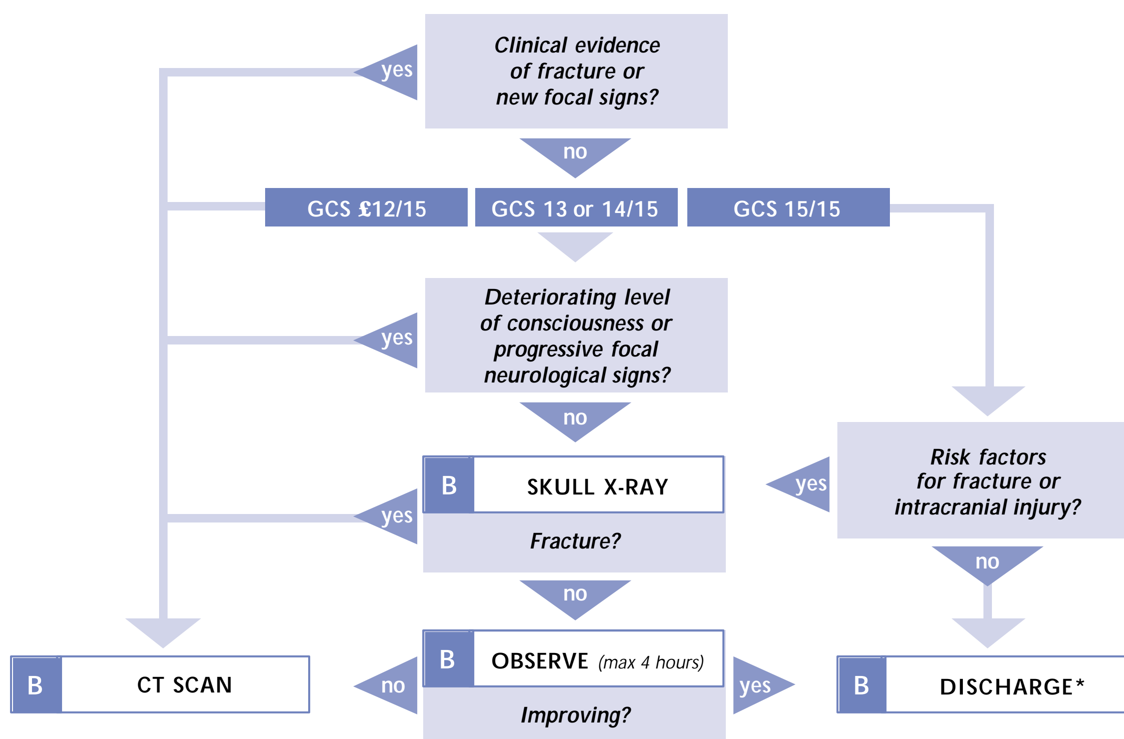
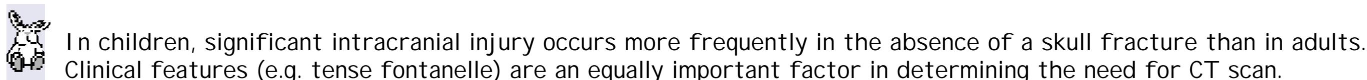
KEY grade of recommendation good practice point paediatric practice point

INDICATIONS FOR IMAGING



Patients who have had risk factors for intracranial injury should not be discharged until they fulfil the criteria for discharge from a ward. Further observation is needed for some patients even if consciousness has returned to normal.



In children, significant intracranial injury occurs more frequently in the absence of a skull fracture than in adults. Clinical features (e.g. tense fontanelle) are an equally important factor in determining the need for CT scan.

ADMISSION OR DISCHARGE?

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A patient should be **admitted to hospital** if:

- **level of consciousness is impaired** (GCS <15/15)
- **the patient is fully conscious but any of the following risk factors are present:**
  - continuing amnesia (≥ 5 minutes after injury)
  - continuing nausea and/or vomiting
  - a seizure at any time after injury
  - focal neurological signs
  - irritability or abnormal behaviour
  - clinical or radiological evidence of recent skull fracture or suspected penetrating injury
  - an abnormal CT scan
  - severe headache or other neurological symptoms
- **the patient has significant medical problems** (e.g. anticoagulant use)
- **the patient has social problems or cannot be supervised by a responsible adult.**

☑ Patients and carers should be given verbal and written advice and encouraged to seek prompt advice from their GP or A&E department by phone about any worrying symptoms or other concerns.

Children should be admitted if **any** of the following risk factors apply:

- history of loss of consciousness
- neurological abnormality, persisting headache or vomiting
- clinical or radiological evidence of skull fracture or penetrating injury
- difficulty in making a full assessment
- suspicion of non-accidental injury
- other significant medical problems
- not accompanied by a responsible adult or social circumstances considered unsatisfactory.

INDICATORS OF NEUROLOGICAL DETERIORATION

- Development of agitation or abnormal behaviour
- Sustained decrease in conscious level of at least one point in motor or verbal response or two points in eye opening response of the GCS
- Development of severe or increasing headache or persisting vomiting
- New or evolving neurological symptoms or signs, e.g. pupil inequality or asymmetry of limb or facial movement

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