

GUIDELINES

# Early management of head injury: summary of updated NICE guidance

Sarah Hodgkinson,<sup>1</sup> Vicki Pollit,<sup>1</sup> Carlos Sharpin,<sup>1</sup> Fiona Lecky,<sup>2</sup> on behalf of the Guideline Development Group

<sup>1</sup>National Clinical Guideline Centre, Royal College of Physicians, London NW1 4LE, UK

<sup>2</sup>EMRIS, Health Services Research, School of Health and Related Research, University of Sheffield/University of Manchester/Salford Royal Hospitals NHS Foundation Trust, Sheffield S1 4DA, UK

Correspondence to: Fiona Lecky fiona.lecky@manchester.ac.uk

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This is one of a series of *BMJ* summaries of new guidelines based on the best available evidence; they highlight important recommendations for clinical practice, especially where uncertainty or controversy exists.

Further information about the guidance, a list of members of the guideline development group, and the supporting evidence statements are in the full version on [bmj.com](http://bmj.com).

Head injury is the commonest cause of death and disability in people aged 1-40 years in the UK. Each year, 1.4 million people attend emergency departments in England and Wales with a recent head injury. The National Institute for Health and Care Excellence (NICE) published guidance on managing head injury in 2003 (clinical guideline 4)<sup>1</sup> and updated this in 2007 (clinical guideline 56),<sup>2</sup> which resulted in computed tomography (CT) replacing skull radiography as the primary imaging modality for assessing head injury. Key changes driving this update include the introduction of regional trauma networks with prehospital major trauma triage in England; the extension of indications for anticoagulation therapy; the establishment of local safeguarding boards in the UK, requiring front-line clinical staff to assess not only the severity of the head injury but also why it occurred; and new evidence on the initial assessment and early management of head injury.

This article summarises the most recent recommendations from the National Institute for Health and Care Excellence (NICE).<sup>3</sup>

### Recommendations

NICE recommendations are based on systematic reviews of best available evidence and explicit consideration of cost effectiveness. When minimal evidence is available, recommendations are based on the Guideline Development Group's experience and opinion of what constitutes good practice. Evidence levels for the recommendations are in the full version of this article on [bmj.com](http://bmj.com).

### Transport to hospital

- Transport patients who have sustained a head injury directly to a hospital that has the resources to further resuscitate them and to investigate and initially manage multiple injuries.
  - All acute hospitals receiving patients with head injury directly from an incident should have these resources, which should be appropriate for a patient's age
  - In NHS England these hospitals would be trauma units or major trauma centres. In NHS Wales this should be a hospital with equivalent capabilities. (New recommendation.)

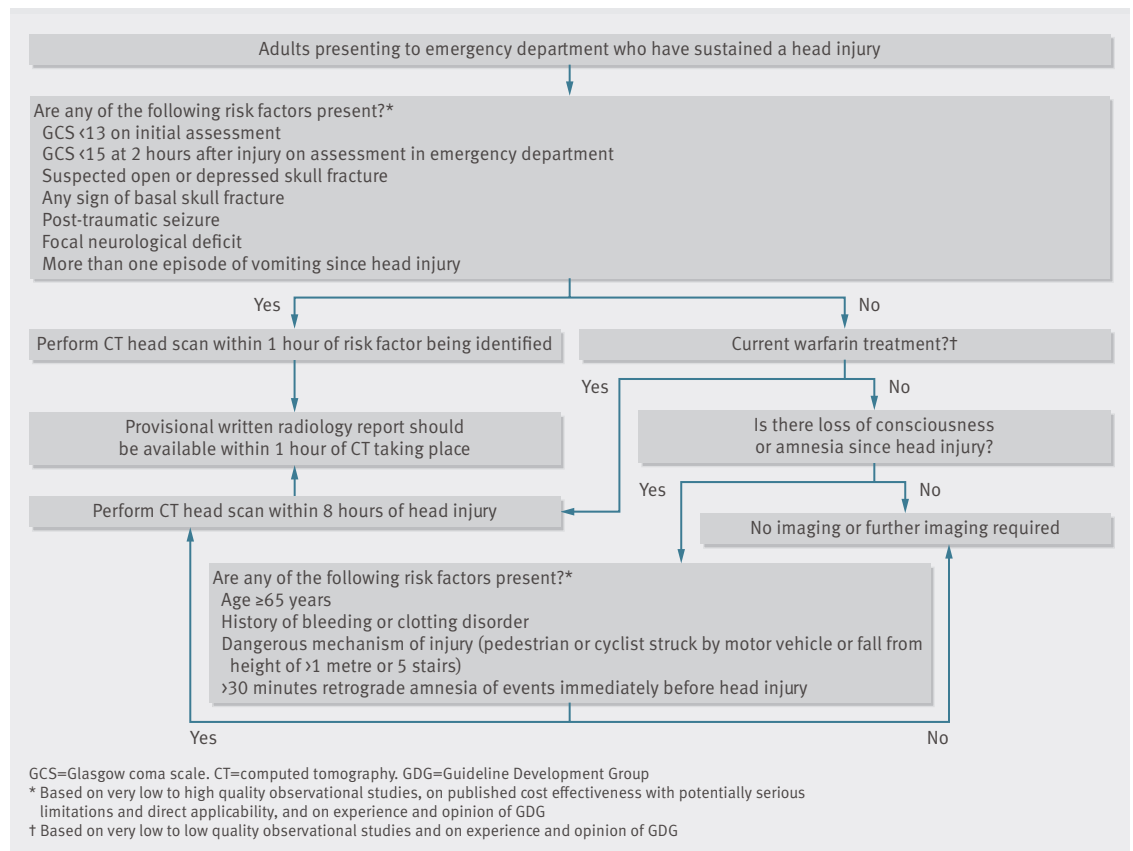


Fig 1 | Algorithm 1: selection of adults for CT head scan

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- ▶ Prostate cancer: summary of updated NICE guidance (*BMJ* 2014;348:f7524)
- ▶ Intravenous fluid therapy for adults in hospital: summary of NICE guidance (*BMJ* 2013;347:f7073)
- ▶ Secondary prevention for patients after a myocardial infarction: summary of updated NICE guidance (*BMJ* 2013;347:f6544)
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- ▶ Management of autism in children and young people: summary of NICE and SCIE guidance (*BMJ* 2013;347:f4865)

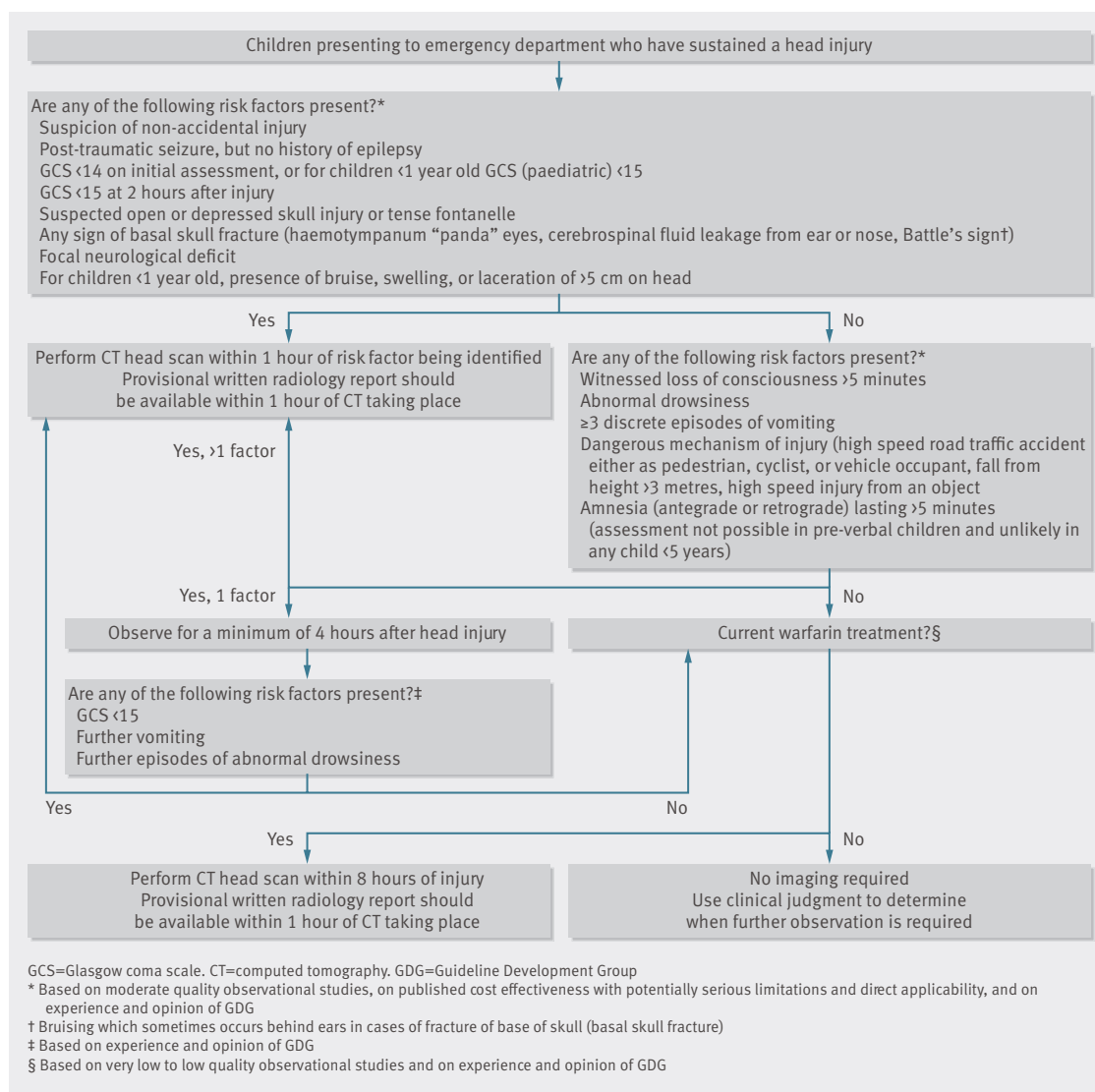


Fig 2 | Algorithm 2: selection of children for CT head scan

### Assessment in the emergency department

- A clinician with training in safeguarding should be involved in the initial assessment of any patient with a head injury presenting to the emergency department. If there are any concerns identified, document these and follow local safeguarding procedures appropriate to the patient’s age. (Updated recommendation.)  
 Figures 1-4 summarise selection criteria for CT head scans in adults (algorithm 1), CT head scan in children (algorithm 2), imaging of the cervical spine in adults (algorithm 3), and imaging of the cervical spine in children (algorithm 4).

### Assessing range of movement in the neck

- In adults and children who have sustained a head injury and in whom there is clinical suspicion of cervical spine injury, range of movement in the neck can only be assessed safely before imaging if there are no high risk factors requiring cervical spine CT scanning within an hour (see algorithms 3 and 4) and if at least one of the following low risk features applies:

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

### Discharge and follow-up

- Give verbal and printed discharge advice to patients with any degree of head injury who are discharged from an emergency department or observation ward, and to their families and carers. Follow recommendations in NICE guidance on patient experience in adult NHS services (clinical guideline 138)<sup>3, 4</sup> about providing information in an accessible format. (New recommendation.)
- Printed advice for patients, family members, and carers should be age appropriate and include:
  - Details of the nature and severity of the injury
  - Details of risk factors that mean the patient should

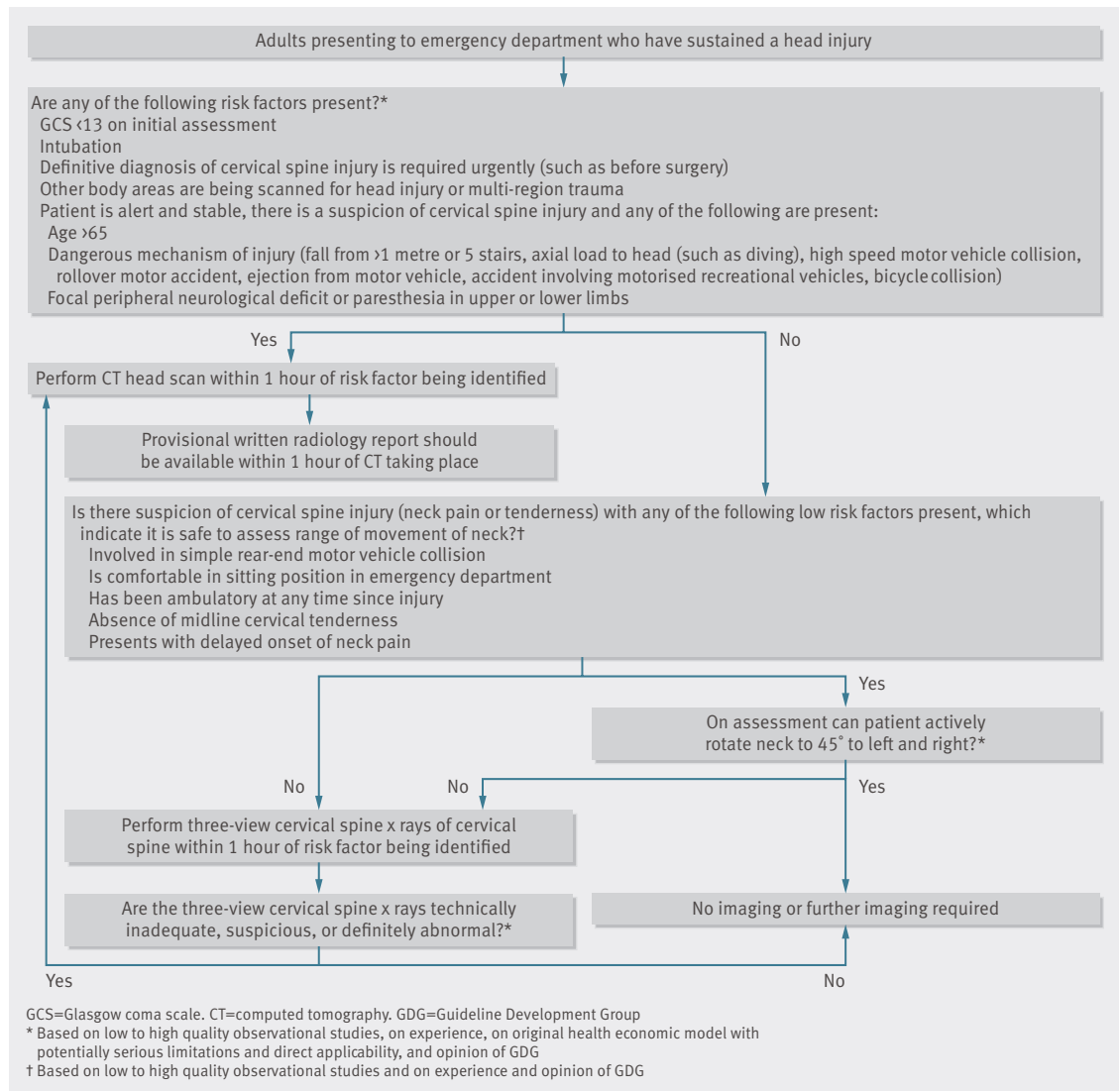


Fig 3 | Algorithm 3: selection of adults for imaging of the cervical spine

- return to the emergency department, such as seizure, vomiting or drowsiness
- A specification that a responsible adult should stay with the patient for the first 24 hours after the injury
- Details of the recovery process, including that some patients seem to make a quick initial recovery but later experience difficulties or complications
- Contact details of community and hospital services in case of delayed complications
- Information about return to everyday activities, including school, work, sports, and driving
- Details of support organisations. (New recommendation.)
- Inform patients and their families and carers about the possibility of persistent or delayed symptoms after head injury and who to contact if they experience ongoing problems. (New recommendation.)
- For all patients who have attended the emergency department with a head injury, write to their GP within 48 hours of discharge, giving details of the clinical history and examination. This letter

should also be shared with health visitors (for preschool children) and school nurses (for school age children). If appropriate, provide a copy of the letter for the patient and their family or carer. (New recommendation.)

**Overcoming barriers**

Over the past decade the NHS has greatly increased the use of CT scanning to investigate head and other injuries, with associated improvements in outcome.<sup>5 6</sup> A further “stretch” during this period of relative austerity is required by this 2014 guideline, with more indications for CT scans of the head (for all patients treated with anti-coagulant drugs) and cervical spine, although there are fewer indications for CT head scanning in children. This will increase time and resource use during an emergency department assessment and for radiology departments, which also need to provide written provisional reports within an hour of performing a CT scan. The clinical and cost effectiveness evidence on which these imaging recommendations are based suggest that they will save NHS resources through delayed or missed diagnoses.

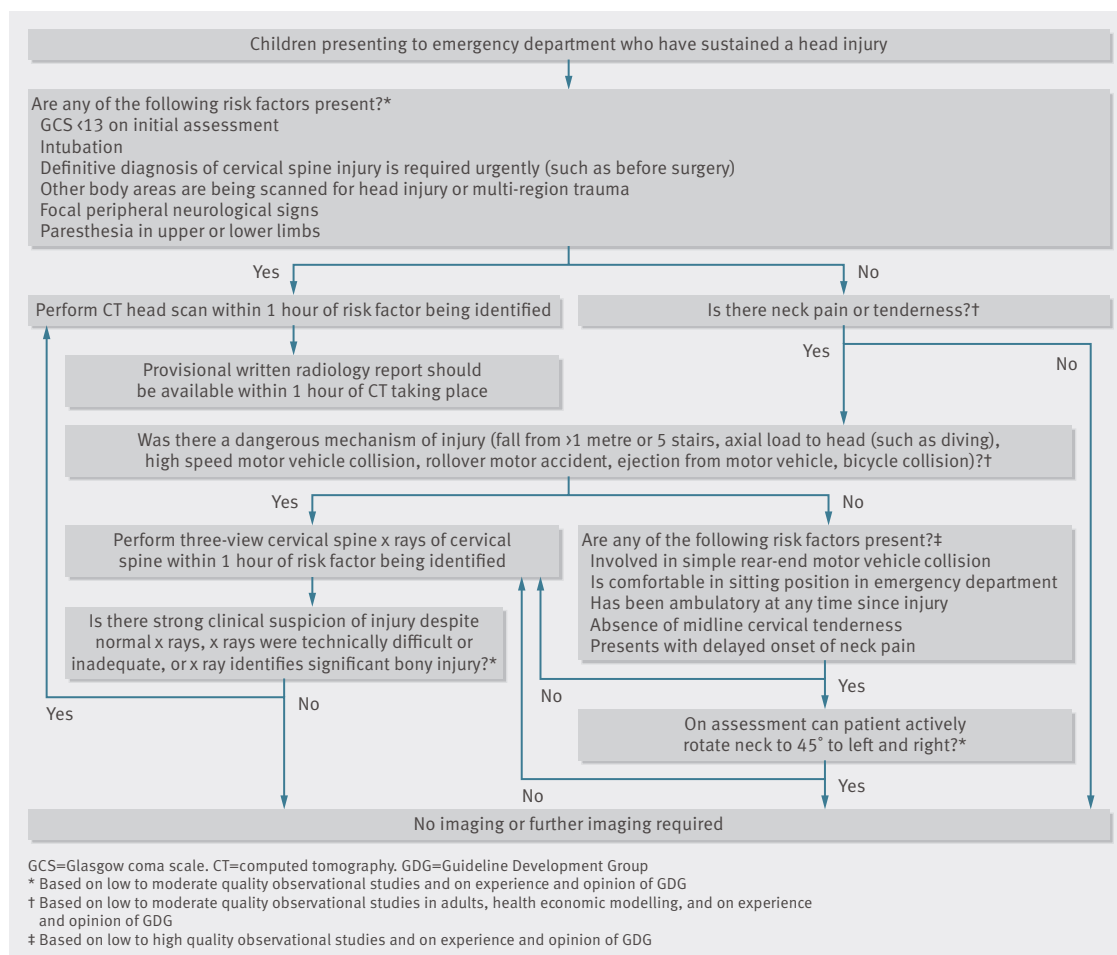


Fig 4 | Algorithm 4: selection of children for imaging of the cervical spine

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- 3 National Institute for Health and Care Excellence. Head injury: triage, assessment, investigation and early management of head injury in infants, children and adults. (Clinical guideline 176.) 2014. [www.nice.org.uk/CG176](http://www.nice.org.uk/CG176).
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## ANSWERS TO ENDGAMES, p 38

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### STATISTICAL QUESTION

#### Prognostic scores

Statements *b*, *c*, and *d* are true, whereas *a* is false.

### ANATOMY QUIZ

#### Axial T1 weighted magnetic resonance imaging of the sacrum

- A: Left psoas muscle
- B: Left iliacus muscle
- C: Right obturator nerve
- D: Right L5 nerve trunk
- E: Thecal sac
- F: Left S2 nerve root
- G: Left S1 nerve root