## Algorithm 1: selecting people 16 and over for a CT head scan

Person 16 or over presenting to the emergency department with a head injury

#### Are any of these risk factors present:

- a GCS score of 12 or less on initial assessment in the emergency department
- a GCS score of less than 15 at 2 hours after the injury on assessment in the emergency department
- suspected open or depressed skull fracture
- any sign of basal skull fracture (haemotympanum, 'panda' eyes, cerebrospinal fluid leakage from the ear or nose, Battle's sign)
- post-traumatic seizure
- focal neurological deficit
- more than 1 episode of vomiting



Do a CT head scan within 1 hour of any of the risk factors being identified

Make a provisional written radiology report available within 1 hour of the scan Do a CT head scan within 8 hours of the injury, or within 1 hour if they present more than 8 hours after injury

Make a provisional written radiology report available within 1 hour of the scan CT head scan not needed Consider a CT head scan within 8 hours of injury, or within 1 hour if they present more than 8 hours after injury

Make a provisional written radiology report available within 1 hour of the scan

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## Algorithm 2: selecting people under 16 for a CT head scan

Person under 16 presenting to the emergency department with a head injury

#### Are any of these risk factors present:

- suspicion of non-accidental injury
- post-traumatic seizure but no history of epilepsy
- a GCS score of less than 14 or, for children under 1, a GCS (paediatric) score of less than 15, on initial assessment in the emergency department
- a GCS score of less than 15 at 2 hours after the injury
- suspected open or depressed skull fracture, or tense fontanelle
- any sign of basal skull fracture (haemotympanum, 'panda' eyes, cerebrospinal fluid leakage from the ear or nose, Battle's sign)
- focal neurological deficit
- for children under 1 year, a bruise, swelling or laceration of more than 5 cm on the head



Do a CT head scan within 1 hour of any of the risk factors being identified

Make a provisional written radiology report available within 1 hour of the scan Consider a CT head scan within 8 hours of injury, or within 1 hour if they present more than 8 hours after injury

Make a provisional written radiology report available within 1 hour of the scan CT head scan not needed

No

Use clinical judgement to determine when further observation is needed

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## Algorithm 3: selecting people 16 and over for imaging of the cervical spine

Person 16 or over presenting to the emergency department with a head injury

#### Are any of these high-risk factors present:

a GCS score of 12 or less on initial assessment

- intubation
- a definitive diagnosis of cervical spine injury is needed urgently (for example, if cervical spine manipulation is needed during surgery or anaesthesia)
- clinical suspicion of cervical spine injury and other body areas are being scanned for a head injury or multiregion trauma
- they are alert and stable, there is suspicion of cervical spine injury and any of these factors:
  - age 65 years or over
  - dangerous mechanism of injury (fall from a height of more than 1 m or 5 stairs, axial load to the head such as from diving, high-speed motor vehicle collision, rollover motor accident, ejection from a motor vehicle, accident involving motorised recreational vehicles, bicycle collision)
  - focal peripheral neurological deficit
  - paraesthesia in the upper or lower limbs





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# Algorithm 4: selecting people under 16 for imaging of the cervical spine

Person under 16 presenting to the emergency department with a head injury

### Are any of these high-risk factors present:

- a GCS score of 12 or less on initial assessment
- intubation
- a definitive diagnosis of cervical spine injury is needed urgently (for example, if cervical spine manipulation is needed during surgery or anaesthesia)
- clinical suspicion of cervical spine injury and other body areas are being scanned for a head injury or multiregion trauma
- focal peripheral neurological signs
- paraesthesia in the upper or lower limbs

