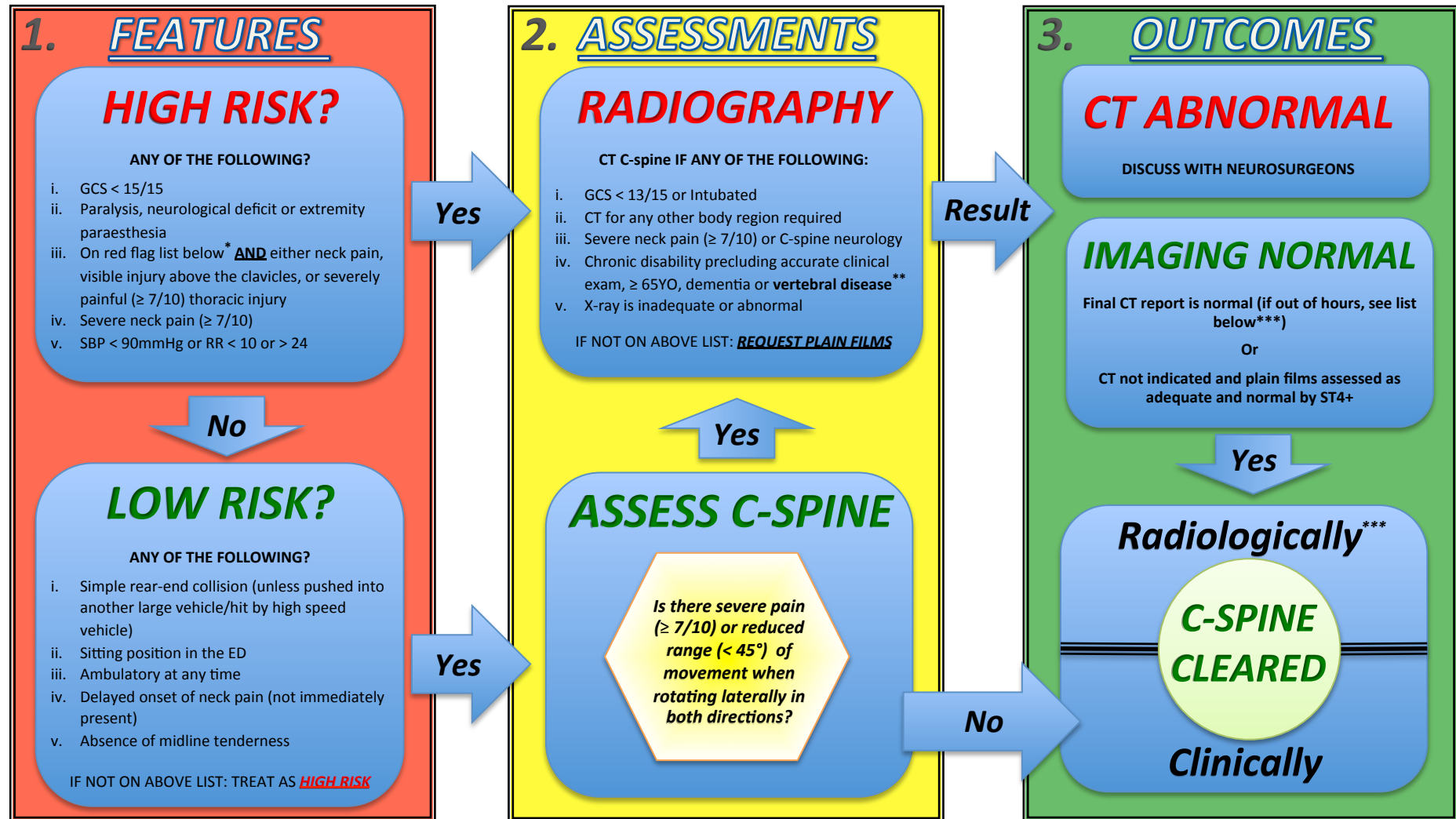


ADULT (≥ 16YO) BLUNT TRAUMA PATIENTS WITH A MECHANISM THAT MAY HAVE INJURED THE NECK



Red Flag List*

1. Fall from > 1m or down ≥5 stairs
2. Axial load to head (eg. diving) or a bicycle collision
3. RTC with combined speed > 60mph or rollover; ejection from vehicle; motorised recreational vehicle accident
4. ≥ 65 YO or **vertebral disease****
5. Injury > 48 hours ago or re-attending with the same injury

Vertebral disease**

1. Ankylosing spondylitis
2. Rheumatoid arthritis
3. Spinal stenosis
4. Previous spinal surgery

C-SPINE cleared radiologically***

1. Alert patients (**not** obtunded/intubated) with a provisional, 'normal' CT report: C-Spine may be cleared clinically by ST4+ (document on TRAK)
2. Normal CT and severe neck pain (≥ 7/10), C-spine neurology, or restrictions of neck movement (< 45°) should remain immobilised and be considered for **MRI** after discussion with radiologist/neurosurgeon
3. Obtunded patients should be assessed clinically when alert, but this should not delay C-spine clearance

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1. Spinal Immobilisation:

The aim of spinal immobilisation in the trauma patient is to reduce the potential for secondary spinal cord injury. Patients deemed at risk of cervical spine injury should have spinal immobilisation until spinal clearance has occurred.

There are some rare exceptions:

1. **The only time immobilisation should occur in penetrating trauma is for a gunshot wound that traverses the neck.** *The cervical collar should be removed if it interferes in any way with haemorrhage or airway control.*
2. **Patients with vertebral abnormalities** (eg. Ankylosing spondylitis, Spinal stenosis, Rheumatoid arthritis, previous spinal surgery) should be immobilised in a *position of comfort* which may not necessarily be achieved with a cervical collar.
3. There are a small number of **patients who do not comply with immobilisation or where immobilisation may cause immediate harm (e.g. airway compromise)** – efforts should be made to protect the spine as safely as possible and the risk/benefits of interventions considered. The patient should never be restrained or be seen to forcefully resist immobilisation. The reasons to alter standard immobilisation techniques should be clearly documented by senior clinical judgement.

Immobilisation consists of all four of the following:

1. **Cervical collar or Manual In Line Stabilisation (MILS)** (Head blocks are an alternative in patients who are deeply sedated or paralysed with a significant brain injury)
2. **Nursing in the supine position or anatomically aligned lateral position with wedge supports**
3. Being **log-rolled** for pressure care and movement
4. The absence of pillows under the head

2. Care of patients in a collar:

1. Stiff-neck collars from the ambulance service/Emergency Department are temporary collars originally designed for extrication. Ideally these should be worn for no more than 4 hours. **Replace with a Miami J or Aspen Collar if a cervical collar is still required after 4 hours, as follows:**
 - i. **The collar should be removed every 4 hours and the neck inspected for areas of pressure**
 - ii. **Movement restrictions should be clearly documented.**
2. Patients who have their cervical spine cleared, no longer require Collar/MILS/head blocks. Log-rolling is still required if the thoracolumbar spine is not cleared.
3. Patients who have had their thoracolumbar spine cleared and still require cervical spine immobilisation, need an early decision by the neurosurgeons on movement restrictions. Mobilisation in a collar should be specifically considered and documented if appropriate (e.g. semi-recumbent position).
4. Patients with pelvic fractures may have other movement restrictions in place.

3. Clearing the cervical spine:

1. To reduce potential complications, **spinal clearance should occur within 12 hours in most patients, and in nearly all patients within 72 hours**
2. The cervical spine can be cleared RADIOLOGICALLY or CLINICALLY (see flowchart)
3. The time and date and name of the person who has cleared the cervical spine should be clearly documented
4. Only re-apply a collar if there has been a breach in protocol or there is a new clinical concern. Any concerns should feedback through the trauma governance process.
5. The following, possibly clinically insignificant injuries, warrant a senior neurosurgical opinion about potential spinal clearance:
 - i. Isolated spinous process fractures not involving the lamina
 - ii. Wedge compression fractures <25%
 - iii. Type 1 odontoid peg fracture
 - iv. Isolated avulsion without associated ligamentous injury
 - v. End plate fracture
 - vi. Isolated transverse process fracture not involving the facet
 - vii. Trabecular bone injury
 - viii. Osteophyte fracture, excluding teardrop and corner fractures

4. Complications:

Delays in spinal clearance can lead to a number of potential complications including:

1. Cervical collar-related decubitus ulceration and sepsis (risk increases by 66% daily).
2. Procedural difficulties – intubation, tracheostomy and central lines
3. Increased risk of pulmonary aspiration and pneumonia
4. Increased need for sedation with delayed weaning
5. Increased intracranial pressure
6. Delays in mobilisation and associated complications