

Guideline: Adult Cervical Spine Protection In Middlemore Emergency Department

Purpose

- The evidence both for and against cervical spine immobilisation is weak. Our existing use of rigid collars in our practice is mainly a result of the historical influence of poor evidence. Utility of rigid c-spine collars in preventing c-spine motion and secondary injury is conflictive at best.
- With this perspective, we should propose **a safe, effective immobilisation strategy** that will not require any new equipment and should be easy to implement; the main difference from the current approach is the omission of routine rigid collar application.
- To **prevent further neurologic injury** or injury associated with routine hard collar application

Aim

- Clearance protocols should be optimised to identify high-risk patients. These patients should not be automatically fitted with a rigid collar, but **immobilised in an anatomically neutral position** with the aid of lateral and occipital support to maintain neutrality, and or a semi rigid collar such as a Philadelphia collar.
- Rigid collar use may be indicated in those with neurologic injury, potential unstable cervical fracture, and in patient transfer, as long as anatomically appropriate cervical spinal alignment is not compromised by rigid collar use.
- **Low risk cooperative patients can be managed out of collars**, direct patient c-spine precaution advice should be provided to maintain neutral alignment and avoid neck movement. The patient should be placed 15 degrees bed tilt up with an appropriate c-spine precaution warning system; utilising patient **C-SPINE NOT CLEARED STICKER** placed on top of their chest clothing. Head blocks and or sand bags may also be placed as an added c spine warning.

Key Points

- *All patients should have spinal cares maintained until fully cleared with documentation in clinical notes.*
- *All patients with potential c-spine injury should be examined and investigated in a timely manner to limit immobilisation time, limit complications of immobilisation, and reduce risk of any secondary injury.*
- *Clearance should utilise ED guidelines and decision rules Canadian C-spine Rule and or Nexus*

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<https://www.mdcalc.com/canadian-c-spine-rule>

<https://www.mdcalc.com/nexus-criteria-c-spine-imaging>

- *Patients undergoing bed transfers (i.e. Radiology) should maintain c-spine protection with appropriate in line neck control and logroll technique. Those patients who are cooperative and medically stable with low risk do not require nursing escort to X-ray/CT unless assistance required in bed transfer. All other patients should have nursing and or medical escort.*

- *Discuss ongoing c spine immobilisation with Orthopaedic/Spinal team.*

ED Risk Assessment and Management

Low Risk Patients

GCS 15 cooperative patients who display low risk features:

- < 65yrs
- No motor or sensory neurology
- Delayed onset cervical pain
- Ambulatory pre hospital or in ED
- No prior cervical injury or operation/fixation or fusion
- No pre-disposing conditions (Ankylosing Spondylitis/Rheumatoid/other)

- *Managed without a collar*
- *Supine with 15 degree bed tilt up*
- *C spine protection sticker placed*
- *Patient given strict spine self-protection instruction*
- *Adequate analgesia provided as soon as possible*

See Canadian c spine and or Nexus criteria

<https://www.mdcalc.com/canadian-c-spine-rule>

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Potentially High Risk Patients

Those with C spine pain without hard neurology who don't meet Low Risk Profile:

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- GCS < 15
- >/= 65yrs
- Subjective sensory symptoms of paraesthesia
- Potential high risk mechanism (including but not limited to)

High speed MVA/RTC	Cyclist/Pedestrian vs Car
Fall > body height	Forced neck movement or axial load

- Significant painful distracting injury
 - Other spinal injuries or significant trauma
 - Prior c-spine injury or fixation/fusion
 - Medical conditions affecting the c-spine (as above)
- *Philadelphia or rigid hard collar fitted appropriately, or anatomically appropriate immobilisation; for those with fixed flexion deformities firm occiput support and lateral movement prevention with sandbag or head blocks.*
 - *Supine with 15 degree bed tilt up*
 - *Patient given strict spine self-protection instruction*
 - *Adequate analgesia provided as soon as possible*

Likely or Confirmed C-spine injury or Fracture

Those patients with evidence of or probable injury:

- Confirmed fracture
 - Hard neurology
 - Signs of neurogenic shock
 - Obvious traumatic c-spine deformity
- *Maintain anatomical appropriate position with rigid hard collar and or with occipital support and lateral support devices*
 - *Supine with 15 degree bed tilt up*
 - *Provide adequate timely analgesia*
 - *Avoid hypotension in spinal cord injury*
 - *Supportive cares airway/breathing/circulation*
 - *Use of in line neck support and log roll for transfers*
 - *Consult with spinal team*

Uncooperative or Agitated Patients with Potential C-spine Injury

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Unstable c-spine injury is uncommon in those without neurology who are actively moving their neck/body or ambulatory. Methods should be employed to minimise agitation and manage potential medical causes for agitation.

- *Managed by ED SMO or senior*
- *Approach to limit agitation through de-escalation techniques*
- *Treat reversible causes of agitation*

Hypoxia	Hypotension
Hypoglycaemia	Electrolyte (Sodium)
Hyperthermia	Toxicological

- *Chemical de-escalation as appropriate*
- *If high risk or likely c spine injury place appropriate immobilisation which may include Philadelphia or rigid hard collar, sand bags, or manual in line stabilisation; provided these do not result in increased patient movement and or agitation.*

Intubated patients with Known or Possible C-spine Injury:

Generally should be managed out of rigid hard collars with appropriate c-spine precautions (lateral support, occiput support).

- *Rigid collars may be used for patient transfers*
- *Maintain in line neck control on logroll and transfers*
- *Ensure adequate sedation and analgesia*
- *Supportive cares to prevent secondary injury*
- *Consult with spinal team for appropriate ongoing immobilisation advice*

References

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3. **Spinal Immobilisation for Trauma Patients.** Irene Kwan, Frances Bunn, Ian G Roberts. Cochrane Database of Systematic Reviews. Published Online: 23 APR 2001. Assessed as up-to-date: 30 JUN 2007.
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5. **UK College of Emergency Medicine Guidelines on the management of cervical spine injury in the ED.** Nov 2010. <http://www.resusme.em.extrememember.com/wp-content/uploads/2011/02/CEM5718-cervical-spine-full-guideline.pdf>

Definitions/Description

Terms and abbreviations used in this document are described below:

Term/Abbreviation	Description

Associated Documents

Other documents relevant to this guideline are listed below:

NZ Legislation & Standards	
CM Health Documents	
Other related documents	

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