

Maine Medical Center Trauma Clinical Practice Guideline (MMCT-CPG)		
<p style="text-align: center;">CERVICAL SPINE CLEARANCE: UNSTABLE FRACTURES WITHOUT NEUROLOGICAL IMPAIRMENT</p> <p style="text-align: center;">(MMC-CPG ID: 2019-05)</p>		
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Guidelines translate best evidence into best practice. A well-crafted guideline promotes quality by reducing healthcare variations, improving diagnostic accuracy, promoting effective therapy, and discouraging ineffective – or potentially harmful – interventions.		

TABLE OF CONTENTS

Summary	02
Purpose	02
Background	02
Clearance by Clinical Exam	03
Initial Imaging	04
Adjunctive Imaging in the Alert Patient.....	05
Adjunctive Imaging in the Obtunded Patient.....	06
Areas of Ongoing Controversy, Special Cases and Comments.....	07
Performance Improvement Monitoring	08
Intent (Expected Outcomes)	08
Performance/Adherence Measures	08
Data Source	08
System Reporting Frequency	08
Responsibilities	09
References	09

SUMMARY

Patients with unstable C-spine fractures present many obstacles. Elderly patients immobilized because of an unstable cervical fracture are particularly predisposed to respiratory insufficiency. Consider early intubation in elderly patients, age > 65, with high frailty.

PURPOSE

Appropriate management of the cervical spine is crucial for preventing further injury in the trauma patient. Immobilization is key to preventing further injury but comes with risks. The Patient with an unstable cervical spine fracture without neurologic deficits requires watchful, coordinated management and particular awareness of the risks of respiratory complications.

RECOMMENDATIONS:

- Behave as though all patients with a c-spine fracture have an unstable fracture until proven otherwise through collaboration with neurosurgery.
- In a patient with unstable C-spine fracture without neurologic deficits:
 - Cervical spine immobilization in and ASPEN collar or other appropriate device (E.G discuss with neurosurgery and OT if significant kyphosis is present) for all patients.
 - Evaluation by Neurosurgery.
 - C-spine clearance to be performed by Neurosurgery.
 - Maintain strict logroll and spine precautions.
 - Discussion with Neurosurgery to advocate for early fixation of C-spine injury if operative intervention is required.
 - If acceptable to Neurosurgery, place head of bed > 30 degrees or reverse Trendelenburg position to 30 degrees.
 - In the elderly patient, age > 65
 - At the discretion of the Trauma/ICU attending, consider empiric or early intubation in patient with high frailty, especially if patient must remain flat or requires traction or Gardner-Wells tongs. Intubation technique must be chosen carefully and maintain spinal alignment.
 - In patients not intubated, at the discretion of the Trauma/ICU attending, at the first sign of respiratory insufficiency, consider early intubation, especially if patient must remain flat, requires traction, or in Gardner-Wells tongs.
 - In patients with high cervical spine fractures requiring mechanical ventilation for prolonged periods, consider early tracheostomy.

BACKGROUND

Some unstable fracture patterns are in the table below. This is a general list to serve as initial guidance and help understand some of the patterns to look for; each fracture is unique and should be assumed to be unstable until proven otherwise!!!!

Classification of spinal injuries

Mechanisms of spinal injury	Stability
Flexion	
Anterior wedge fracture	Stable
Flexion teardrop fracture	Extremely unstable
Clay shoveler's fracture	Stable
Subluxation	Potentially unstable
Bilateral facet dislocation	Always unstable
Atlanto-occipital dislocation	Unstable
Anterior atlantoaxial dislocation with or without fracture	Unstable
Odontoid fracture with lateral displacement	Unstable
Fracture of transverse process	Stable
Flexion-rotation	
Unilateral facet dislocation	Stable
Rotary atlantoaxial dislocation	Unstable
Extension	
Posterior neural arch fracture (C1)	Unstable
Hangman's fracture (C2)	Unstable
Extension teardrop fracture	Usually stable in flexion; unstable in extension
Posterior atlantoaxial dislocation with or without fracture	Unstable
Vertical compression	
Burst fracture of vertebral body	Stable
Jefferson fracture (C1)	Extremely unstable
Isolated fractures of articular pillar and vertebral body	Stable

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PERFORMANCE IMPROVEMENT MONITORING

Intent / Expected Outcomes

Performance / Adherence Measures

1. Neurosurgical Consult Documentation
2. C-spine precautions documented and ordered
3. Deviations from the CPG will be discussed in accordance with the PIPs process.

Data Source:

1. Morning report and patient record

SYSTEM REPORTING & FREQUENCY

The above constitutes the minimum criteria for PI monitoring of the MMCT-CPG. System reporting will be performed annually; additional PI monitoring and system reporting may be performed as needed.

The system review and data analysis will be performed by the MMC Trauma Service under the direction and responsibility of the MMC Trauma Medical Directory and MMC Trauma Medical Program Manager.

RESPONSIBILITIES

It is the Trauma Medical Director's responsibility to ensure familiarity, appropriate compliance, and PI monitoring with this MMCT-CPG.

REFERENCES

1. Como, John J. MD; et al Practice Management Guidelines for Identification of Cervical Spine Injuries Following Trauma: Update From the Eastern Association for the Surgery of Trauma Practice Management Guidelines Committee. The Journal of Trauma: Injury, Infection, and Critical Care 67(3):p 651-659, September 2009. | DOI: 10.1097/TA.0b013e3181ae583b