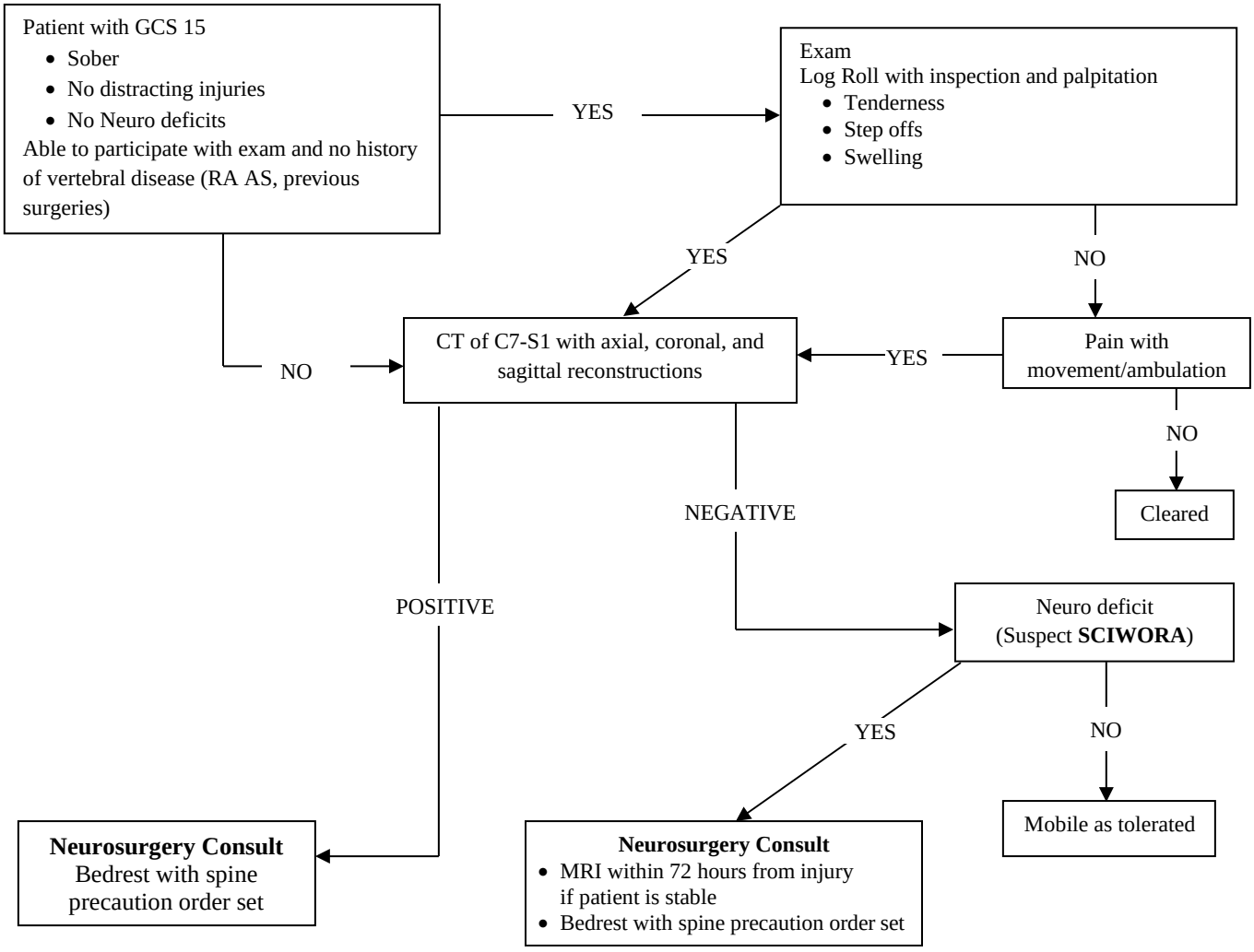
Trauma Center Practice Management Guideline

Iowa Methodist Medical Center — Des Moines

Thoracolumbar Spine Algorithm	
ADULT **Practice Management Guideline**	**Effective: 04/2014**
Contact: Trauma Center Medical Director	**Last Reviewed: 04/2024**



Trauma Center Practice Management Guideline

Iowa Methodist Medical Center — Des Moines

Screening of Thoracolumbar Spine Injuries in Adult Trauma Patients

ADULT **Practice Management Guideline**	**Effective: 04/2014**
Contact: Trauma Center Medical Director	**Last Reviewed: 04/2024**

PURPOSE

To address the evaluation and clearance of the thoracolumbar spine for adult trauma patients

DEFINITIONS

1. **Adult Trauma Patient**: Any patient greater than 17 years old admitted for an injury

2. **Painful Distracting Injuries** include but are not limited to:

   A. Any long bone fracture
   B. Visceral injury requiring surgical consultation
   C. Large laceration, degloving injury, or crush injury
   D. Any other injury causing acute functional impairment
   E. Injury that impairs the patient's ability to appreciate other injuries

3. **High Energy Mechanism** of Injury includes but not limited to:

   A. Pedestrians struck
   B. Sport/crush injury
   C. Bicycle accident (high speed)
   D. Fall from significant height (>10 feet)
   E. Motor vehicle/motorcycle/all-terrain vehicle crash with or without ejection

POLICY STATEMENTS

1. Injury determination in the thoracolumbar region of the spine is a common problem encountered by those caring for acutely injured patients.

2. Patient presentation, physical examination, mechanism of injury and past medical history are important determinants for further workup of the thoracolumbar spine in adult trauma patients

3. Ligamentous injury without bony injury of the thoracolumbar spine is extremely rare.

4. Prolonged immobilization can increase the risk of pulmonary complications, decubitus ulcers, and venous thromboembolism. Prompt injury identification and management of spine fractures can allow for early mobilization and risk reduction.

5. The use of CT scan for screening blunt trauma patients for thoracolumbar spine injuries as the only screening modality increases accuracy and decreases the time to diagnosis of an injury.

PROCEDURE STATEMENTS

1. Trauma patients meeting ALL of the following criteria are able to be clinically cleared.

A. Patient presentation and physical examination
- Alert with Glasgow Coma Score of 15
- Neurologically intact
- Stable/baseline vital signs
- No painful or distraction injury
- No evidence of ethanol or drug intoxication

B. Patient history of event and present complaint
- Delayed onset of spine pain
- Low energy mechanism of injury
- Absence of midline spine tenderness
- Simple rear-ended motor vehicle crash

2. Radiologic workup is indicated for

A. High energy mechanism of injuries
B. Patient presentation and physical exam
- Altered mental status with a Glasgow Coma Score of less than 15.
- Unstable vital signs
- Painful or distraction injury
- Neurologic compromise
- Evidence of ethanol or drug intoxication

C. Past medical history of known vertebral disease (i.e., spinal stenosis, rheumatoid arthritis, ankylosing spondylitis and/or previous spine surgery)

3. Radiological Evaluation

A. Radiographic screening of the spinal axis can be performed by a number of means, however,
- Plain films are inadequate (especially in pts with a history of vertebral disease).
- CT Thoracolumbar spine with axial, coronal and sagittal reconstructions is the current "gold standard". (These images are automatically done per protocol in any IMMC/Blank Children's trauma patient who has had a CT of the Chest, Abdomen and Pelvis for trauma.)
- MRI evaluation may be indicated for the following:
  - CT and/or plain film findings suspicious for epidural or ligamentous injury
  - Neurological abnormalities (i.e., motor or sensory deficits)
  - Clinical suspicion despite normal studies (SCIWORA)

4. Plan of care

A. IF an injury is identified from the imaging
- Continue total spine precautions
- Consult Spine Service

B. IF fewer than 4 thoracolumbar transverse and/or spinous process fractures are identified
- Spine Service consult is not mandatory.
- Discontinue spine precautions
- Consult PT/OT to assist with mobilization
- Follow-up in trauma clinic as needed

C. If an injury is not identified from the imaging AND no midline tenderness to palpation
- Discontinue spine precautions
- Consult PT/OT as needed
- Follow-up in Trauma Clinic as needed

Related References:

1. Practice Management Guidelines for the Screening of Thoracolumbar Spine Fracture Eastern Association for the Surgery of Trauma: Practice Management Guideline Revised 2012
2. Dailey AT, Arnold PM, Anderson PA, Chi JH, Dhall SS, Eichholz KM, Harrop JS, Hoh DJ, Qureshi S, Rabb CH, Raksin PB, Kaiser MG, O'Toole JE. Congress of Neurological Surgeons Systematic Review and Evidence-Based Guidelines on the Evaluation and Treatment of Patients With Thoracolumbar Spine Trauma: Classification of Injury. Neurosurgery. 2019 Jan 1;84(1):E24-E27. doi: 10.1093/neuros/nyy372. PMID: 30202904.
3. Harrop, James S MD; Chi, John H MD, MPH; Anderson, Paul A MD; Arnold, Paul M MD; Dailey, Andrew T MD; Dhall, Sanjay S MD; Eichholz, Kurt M MD; Hoh, Daniel J MD; Qureshi, Sheeraz MD, MBA; Rabb, Craig H MD; Raksin, P B MD; Kaiser, Michael G MD; O'Toole, John E MD, MS. Congress of Neurological Surgeons Systematic Review and Evidence-Based Guidelines on the Evaluation and Treatment of Patients With Thoracolumbar Spine Trauma: Neurological Assessment. Neurosurgery 84(1):p E32-E35, January 2019. | DOI: 10.1093/neuros/nyy370
4. Qureshi, Sheeraz MD, MBA; Dhall, Sanjay S MD; Anderson, Paul A MD; Arnold, Paul M MD; Chi, John H MD, MPH; Dailey, Andrew T MD; Eichholz, Kurt M MD; Harrop, James S MD; Hoh, Daniel J MD; Rabb, Craig H MD; Raksin, P B MD; Kaiser, Michael G MD; O'Toole, John E MD, MS. Congress of Neurological Surgeons Systematic Review and Evidence-Based Guidelines on the Evaluation and Treatment of Patients With Thoracolumbar Spine Trauma: Radiological Evaluation. Neurosurgery 84(1):p E28-E31, January 2019. | DOI: 10.1093/neuros/nyy373