

SECTION: Adult Trauma Patient Care

PROTOCOL TITLE: Injury – Spinal Motion Restriction

REVISED: 06/2017

OVERVIEW:

Mechanism of injury alone has not been shown to be a predictor for spinal injury. An appropriate patient assessment can be used to determine need for spinal motion restriction. The below is cervical spinal motion restriction selection guidelines taken from National Model Guidelines V2 and NEXUS (National Emergency X-Radiography Utilization Study).

There is limited data studying spinal motion in patients with applied cervical collars. Patient exiting out of car under their own power, with cervical collar in place, may result in the least amount of motion of the cervical spine.¹ Cervical spinal motion restriction devices include, but are not limited to soft and hard collars.

Long back boards have not been shown to reduce spinal injury complications. Long backboards are associated with increased pain, decubitus development, and possibly decreased functional residual capacity of the lungs. Long backboards and scoop stretchers are patient transfer devices and not devices ideal for patient transport. If utilized, patients (all ages) should be removed off the long backboard and scoop stretchers as soon as possible.

HPI	Signs and Symptoms	Considerations
<ul style="list-style-type: none"> • Time of injury • Mechanism of injury (blunt vs. penetrating) • Restraints/protective devices • Prior cervical spine surgery • Known vertebral disease • Medical history • Medications • Evidence of multi-system trauma 	<ul style="list-style-type: none"> • Spine pain • Limited neck mobility • Neurological deficit • Unstable/abnormal vital signs 	<ul style="list-style-type: none"> • Spinal cord injury • Fracture of vertebrae • Head injury • Neurogenic shock • Distracting injury

Protocol 4-13

Continued

SPINAL MOTION RESTRICTION

	EMR	EMT	A	I	P
1. Maintain scene and provider safety.	•	•	•	•	•
2. Perform general patient management.	•	•	•	•	•
3. Support life-threatening problems.	•	•	•	•	•
4. Assess need for cervical spinal motion restriction. If indicated (steps 5-9 below), perform spinal motion restriction (SMR)		•	•	•	•
5. For penetrating trauma of any age, <i>may consider</i> cervical spinal motion restriction device if neurological deficits are present. SMR in penetrating trauma may be associated with higher mortality ⁱⁱ		•	•	•	•
6. For patients, 15 years of age or under, apply cervical spinal motion restriction device for the following: <ol style="list-style-type: none"> Torticollis (neck spasm) or neck tenderness Substantial injury to the torso High risk MVC (high speed, rollover, significant damage) Diving incidents Neurological deficit Altered mental status Intoxication Provider discretion <p>If cervical spinal motion restriction device is applied, assess the need for Thoracic and Lumbar SMR. May use backboard or scoop stretcher to facilitate moving the patient to stretcher. The patient should be removed off the backboard or scoop stretcher as soon as possible if feasible.</p>		•	•	•	•
7. For non-penetrating trauma patients, who are injured or have a trauma mechanism, greater than 15 years of age, determine if high risk factors are present. Assess for reliability of history/exam. If <u>any</u> of the following, provide Spinal Motion Restriction: <ol style="list-style-type: none"> Age 65 years of age or greater Not alert & oriented and/or GCS < 15 Clinically Intoxicated Distracting injuries (such a long bone fracture) Inability to communicate adequately 		•	•	•	•
8. For non-penetrating trauma patients, who are injured or have a trauma mechanism, greater than 15 years of age, if ANY numbness, tingling, asymmetric movement of extremities, inability to feel light touch, or bony tenderness to axial spine (palpate entire spine), perform cervical spinal motion restriction.		•	•	•	•

<p>9. For non-penetrating patients, who are injured or have a trauma mechanism, greater than 15 years of age, if cervical spinal motion restriction device is applied, assess for the need for thoracic and/or lumbar SMR. Use backboard or scoop stretcher to facilitate moving the patient to stretcher. The patient should be removed off the backboard or scoop stretcher as soon as possible if feasible.</p>		•	•	•	•
<p>10. Transport to an appropriate facility as indicated by the Regional Field Triage Scheme if applicable, and perform ongoing assessment as indicated.</p>		•	•	•	•

PEARLS:

- EMS Providers are expected to use good judgment and may elect to apply cervical spinal motion restriction device to any patient.
- Mechanism of injury alone has not been shown to be a predictor for spinal injury. All patients with a dangerous mechanism of injury, AMS, spine tenderness, distracting injuries, or an unreliable physical exam should be treated in such a manner as to limit spinal motion.

References

ⁱ West J Emerg Med. 2009 May; 10(2): 74–78. **Cervical Spine Motion During Extrication: A Pilot Study**
Jeffery S. Shafer, MD, EMTP and Rosanne S. Naunheim, MD

ⁱⁱ J Trauma. 2010 Jan;68(1):115-20; discussion 120-1. doi: 10.1097/TA.0b013e3181c9ee58.
Spine immobilization in penetrating trauma: more harm than good? Haut et al