



**REGION 11  
CHICAGO EMS SYSTEM  
PROTOCOL**

Title: Spinal Care – BLS/ALS

Section: Trauma

Approved: EMS Medical Directors Consortium

Effective: July 10, 2024

## **SPINAL CARE – BLS/ALS**

### **I. PATIENT CARE GOALS**

1. Select patients for whom spinal motion restriction (SMR) is indicated.
2. Minimize secondary injury to spine in patients who have, or may have, an unstable spinal injury.
3. **Spinal Motion Restriction (SMR)** is defined as attempting to maintain the head, neck, and torso in anatomic alignment and independent from device use.

### **II. PATIENT MANAGEMENT**

#### **A. Assessment**

1. Assess the scene to determine the mechanism of injury.
  - a. Mechanism alone should not determine if a patient requires spinal motion restriction – however, mechanisms that have been associated with a higher risk of injury are:
    - i. Motor vehicle crashes (including automobiles, all-terrain vehicles, and snowmobiles)
    - ii. Axial loading injuries to the spine (large load falls vertically on the head or a patient lands on top of their head)
    - iii. Falls greater than 10 feet
    - iv. Minor trauma in patients  $\geq 65$  years old
2. Assess the patient in the position found for findings associated with spine injury:
  - a. Altered mental status
  - b. Neurologic deficits
  - c. Neck or back pain or tenderness
  - d. Any evidence of intoxication
  - e. Other severe injuries, particularly associated torso injuries

#### **B. Treatment and Interventions**

1. Place patient in cervical collar and initiate Spinal Motion Restriction (SMR) if there are any of the following:
  - a. Patient complains of midline neck or spine pain
  - b. Any midline neck or spine tenderness with palpation
  - c. Any abnormal mental status (including severe agitation)
  - d. Focal or neurologic deficit
  - e. Any evidence of alcohol or drug intoxication



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- f. Another severe or painful distracting injury is present
  - g. Torticollis in children
  - h. A communication barrier that prevents accurate assessment
  - i. If none of the above apply, patient may be managed without a cervical collar and SMR
2. Patients with penetrating injury to the neck should not be placed in a cervical collar or other spinal precautions regardless of whether they are exhibiting neurologic symptoms or not. Doing so can lead to delayed identification of injury or airway compromise, and has been associated with increased mortality.
3. If extrication is required:
  - a. From a vehicle: After placing a cervical collar, if indicated, children in a booster seat and adults should be allowed to self-extricate. For infants and toddlers already strapped in a car seat with a built-in harness, extricate the child while strapped in his/her car seat.
  - b. Other situations requiring extrication: A padded long board may be used for extrication, using the lift and slide (rather than a logroll) technique.
4. Helmet removal
  - a. If a football helmet needs to be removed, it is recommended to remove the face mask followed by manual removal (rather than the use of automated devices) of the helmet while keeping the neck manually immobilized - occipital and shoulder padding should be applied, as needed, with the patient in a supine position, in order to maintain neutral cervical spine positioning.
  - b. Evidence is lacking to provide guidance about other types of helmet removal.
5. Patients requiring spinal motion restriction should be secured to and transported on ambulance stretcher with cervical collar in place. Do not transport patients on rigid long boards, unless the clinical situation warrants longboard use. An example of this may be facilitation of immobilization of multiple extremity injuries or an unstable patient where removal of a board will delay transport and/or other treatment priorities. In these situations, long boards should ideally be padded or have a vacuum mattress applied to minimize secondary injury to the patient.
6. Patients should be transported to the nearest appropriate facility, in accordance with the Region 11 Trauma Field Triage Criteria Policy.
7. Patients with severe kyphosis or ankylosing spondylitis may not tolerate a cervical collar. These patients should have spinal motion restriction (SMR) applied in a position of comfort using towel rolls.



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**C. Patient Safety Considerations**

1. Be aware of potential airway compromise or aspiration in spinal motion restriction (SMR) patients with nausea/vomiting or with facial/oral bleeding.
2. Excessively tight straps can limit chest excursion and cause hypoventilation.
3. Prolonged immobilization on spine board can lead to ischemic pressure injuries to skin.
4. Prolonged immobilization on spine board can be very uncomfortable for the patient.
5. Children are abdominal breathers, therefore straps should go across chest and pelvis and not across the abdomen.
6. **Pediatric Consideration:** Children have disproportionately larger heads. When securing pediatric patients to the stretcher with spinal motion restriction (SMR), the body should be elevated approximately 1–2 cm to accommodate the larger head size and avoid neck flexion when flat.
7. In an uncooperative patient, avoid interventions that may promote increased spinal movement.
8. The preferred position for all patients with spine management is flat and supine. There are three circumstances under which raising the head of the bed to 30 degrees should be considered:
  - a. Respiratory distress
  - b. Suspected severe head trauma
  - c. Promotion of patient compliance

**III. NOTES/EDUCATIONAL PEARLS**

- A. Evidence is lacking to support or refute the use of manual stabilization prior to spinal assessment in the setting of a possible traumatic injury when the patient is alert with spontaneous head/neck movement. Clinicians should not manually stabilize these alert and spontaneously moving patients, since patients with pain will self-limit movement and forcing immobilization in this scenario may unnecessarily increase discomfort and anxiety.
- B. Ambulatory patients may be safely secured on a stretcher with cervical collar and straps and will not generally require a spine board.



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- C. Reserve long spine board use for the movement of patients whose injuries limit ambulation and who meet criteria for the use of spinal precautions. Remove from the long board as soon as is practical.
- D. Communication barriers with infants/toddlers, the elderly, patients with dementia may prevent the clinician from accurately assessing the patient. In these situations, strongly consider SMR.
- E. Spinal precautions or spinal motion restriction (SMR) should be considered a treatment or procedure.