

SYMPTOMS: Traumatic mechanism of injury.

- Identify patients for whom spinal motion restriction (SMR) is indicated.
- Minimize secondary injury in patients who have, or may have, an unstable spinal injury.
- Minimize patient morbidity from the use of immobilization devices.

Assessment, Treatment, and Interventions

ALL LEVELS

1. Assess the scene to determine mechanism of injury.
 - a. Patients with pain will self-limit movement.
 - b. Providers should not manually stabilize when the patient is alert with spontaneous head and neck movement.
 - c. Mechanism of injury alone should not determine if a patient requires spinal motion restriction.
 - d. Mechanisms that have been associated with a high risk of injury are;
 - i. Motor vehicle crashes (automobiles, all-terrain vehicles, snowmobiles)
 - ii. Axial loading injuries (force directed thru top of head thru spine)
 - iii. Falls greater than 10 feet
2. Conduct primary survey per the [General Trauma Management guideline \[T-1\]](#).
3. Obtain/Monitor vital signs frequently.
4. Assess patient in position found for findings associated with spine injury:
 - a. Mental status
 - b. Neurologic deficits
 - c. Spinal pain or tenderness
 - d. Any evidence of intoxication
 - e. Other severe injuries, particularly associated torso injuries.
5. Do not place patient with penetrating injury to the neck in cervical collar or employ other spinal precautions regardless of exhibiting neurologic symptoms. Doing so can lead to delayed identification of injury or airway compromise and has been associated with increased mortality.
6. Spinal precautions should be considered a treatment or preventive therapy.
7. Place patient in cervical collar if there are any of the following:
 - a. Patient complains of midline neck or spine pain
 - b. Any midline neck or spinal tenderness with palpation
 - c. Any abnormal mental status (including extreme agitation)
 - d. Focal or neurologic deficit
 - e. Any evidence of alcohol or drug intoxication
 - f. Another severe or painful distracting injury is present
 - g. Torticollis (twisted neck)
 - h. A communication barrier that prevents accurate assessment
8. If none of the above apply, (7 a-h) patient may be managed without a cervical collar.
9. 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. Infants and toddlers already strapped in a car seat with a built-in harness, should be extricated while strapped in car seat.
 - b. From other situations: A padded long board may be used for extrication, using the lift and slide (rather than logroll) technique.

- c. Football helmet: Remove the face mask followed by manual removal 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, to maintain neutral cervical spine positioning.

10. Do not transport on rigid long board unless clinical situation warrants.

11. The preferred position for all patients with spine management is flat and supine. Raising the head of the cot to 30 degrees may be considered when respiratory distress, suspected severe head trauma, or promotion of patient compliance are issues.

EMR-O; EMT-R

12. Obtain blood glucose and SpO₂.

13. Administer oxygen as appropriate for dyspnea or distress with a target of achieving greater than 93% saturation for most acutely ill patients.

14. Manage pain per [Pain Management guideline \[M-11\]](#).

Patient safety considerations:

- Long boards should be padded or have a vacuum mattress applied to minimize secondary injury to patient.
- Excessively tight immobilization straps can limit chest movement and cause hypoventilation.
- Immobilized patients with nausea or vomiting, or with facial or oral bleeding, can potentially suffer airway compromise or aspiration.
- Prolonger immobilization on spine board can be very uncomfortable for patient and lead to ischemic pressure injuries to skin.
- When securing pediatric patients to a spine board, the board should have a recess for the head, or the body should be elevated approximately 1-2 cm to accommodate the larger head size and avoid neck flexion.
- Children are abdominal breathers so immobilization straps should go across chest and pelvis when possible.
- Immobilize patients with severe curvature of the spine in a position of comfort using padding as needed. These patients may not tolerate a cervical collar.