

Selective Spine Assessment & Spinal Motion Restriction

Supersedes: 02-09-15

Effective: 10-20-15

Spinal cord injury may be the result of direct blunt and/or penetrating trauma, compression forces (axial loading), abnormal motion (hyper-flexion, hyperextension, hyper-rotation, lateral bending and distraction (i.e., hanging). Most spinal injuries result from motor vehicle crashes, falls, firearms, and recreational activities.

Spinal injuries may be classified into sprains, strains, fractures, dislocations and/or actual cord injuries. Spinal cord injuries are classified as complete or incomplete and may be the result of pressure, contusion, or laceration of the cord.

Individuals should be assessed and treated for possible spinal injury, and immobilized if necessary, if they have sustained an injury with a concerning mechanism, and either have symptoms of injury and/or have a reason not to adequately perceive or to be able to communicate the symptoms of such injury.

Long backboards are NOT considered standard of care in most cases of potential spinal injury. Instead, use spinal motion restriction (SMR) with a cervical collar and cot in most cases. Note that there are exceptions, such as a patient with a potential spinal injury who cannot be logrolled while being transported and may be at risk of a compromised airway, an unstable trauma patient requiring rapid transport to the nearest trauma center, suspected injuries that require other interventions or minimizing excess movement (e.g. patient requiring a traction splint), or in cases where removal of longboard is not practical (obese patient, inadequate space to perform removal, etc.). In these cases, it may be more appropriate to initiate transport while leaving the patient on a long spine board or scoop.

Concerning mechanisms that may result in spinal column injury:

- Fall from over 3 feet, including adult fall from standing, or 5+ stair steps
- MVC at 30+ mph, or rollover or ejection
- Motorcycle, bicycle, other mobile conveyance, or pedestrian-vehicle accident
- Diving or axial load
- Electric shock

Symptoms of spinal column injury may include:

- Posterior neck or back pain or tenderness;

- Paresthesias or loss of sensation in extremities;
- Weakness or paralysis of extremities;

Conditions placing individuals at risk to not perceive or complain of the symptoms of spinal column injuries:

- Altered mental status due to disease, injury, intoxication, or other causes;
- Inability to adequately communicate;
- History of cervical spine injury or abnormality, or conditions causing fragile bones;
- Distracting injury (such as long-bone fracture);
- Age extremes (including >65 years of age);

Individuals sustaining lesser injuries, patients who do not have symptoms of spinal column injury and do not experience a condition that would impair the patient's ability to perceive or communicate symptoms of spinal column injuries do not require spinal immobilization

Penetrating injuries to the neck generally do not require spinal immobilization.

ASSESSMENT / TREATMENT PRIORITIES

1. Ensure scene safety, appropriate universal precautions, request additional EMS resources (BLS or ALS) as necessary, perform thorough primary survey, treat any life threatening injuries immediately, appropriate oxygen and IV therapy
2. If patient is assessed as stable and there is a suspicion of possible c-spine injury begin assessment and history to determine if the patient needs to be placed in a collar and undergo spinal motion restriction. Mechanism of Injury should be used as a historical component of the assessment and lead to further spine assessment (i.e. Axial loading (diving), blunt trauma, motor vehicle crash (MVC)*, fall >3ft, adult fall from standing height.

*MVC applies to crashes of all motorized vehicles: e.g. automobile, motorcycle, snowmobile, etc.)

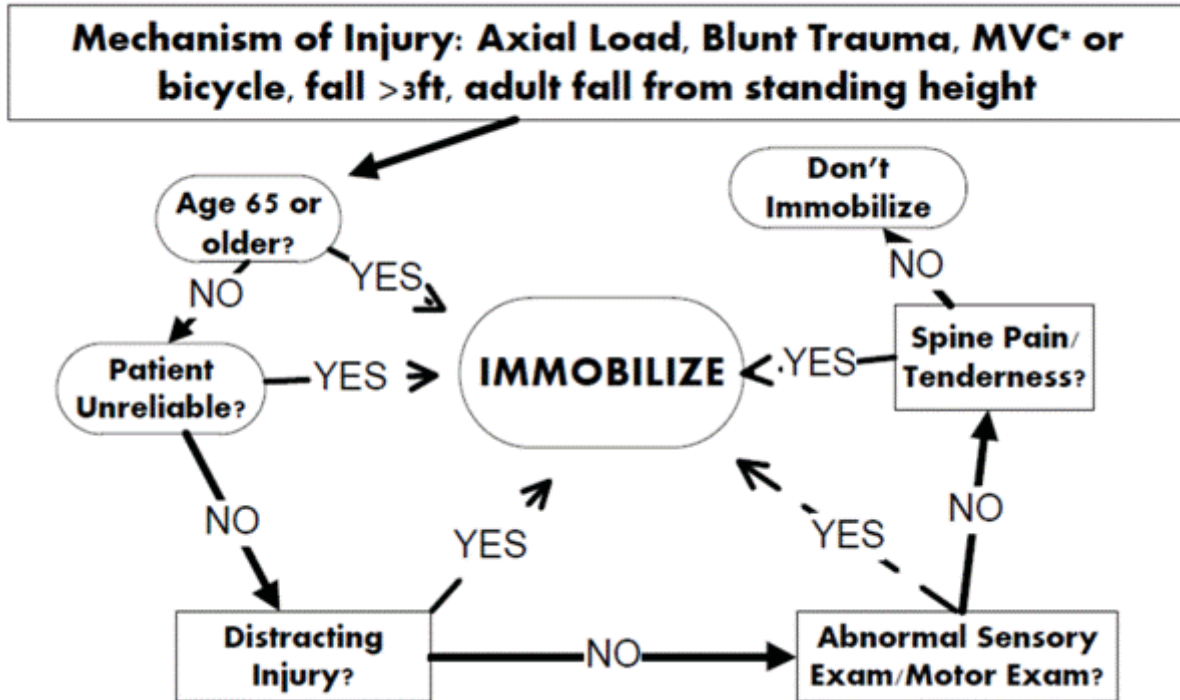
3. If a concerning mechanism exists, the provider should go to the Selective Spine Assessment Protocol (SSAP) to determine if any of the inclusion criteria exist for spinal immobilization.
4. Spinal precautions should be maintained until all components of SSAP have been completed. For patients who have *isolated* thoracic or lumbar/sacral spine pain/tenderness, cervical collar placement is not necessary unless the patient has another criteria for cervical spine immobilization (age > 65, unreliable patient,

distracting injury or abnormal sensory/motor deficits). If there is any doubt on cervical spine involvement, cervical collar use is appropriate.

5. Attempting to force an uncooperative patient into spinal immobilization may be counter-productive. Contact on-line medical control for any question about indications for spinal immobilization.

NOTE: If patient is < 65 years old and it is determined through a complete assessment that the patient is 1) Reliable (including ability to communicate adequately) 2) Has no distracting injuries 3) Has no abnormal sensory/motor deficits 4) Has no spine pain/tenderness – DO NOT IMMOBILIZE.

Spine Assessment Protocol



Abnormal Sensory/Motor Exam?

If, based on the assessment, the patient has any abnormal neurological findings (including, but not limited to, paresthesias or loss of sensation in extremities, weakness or paralysis of extremities, loss of urethral or sphincter control, etc.) – **Immobilize (See Spine Assessment Protocol)**

Distracting Injury?

Distracting injuries include any injury that produces clinically apparent pain that might distract the patient from the pain of a spine injury – pain would include medical as well as traumatic etiologies of pain – **If, based on the assessment, the patient has distracting injuries - Immobilize (See Spinal Assessment Protocol)**

Complaints of Pain or Examination Tenderness?

Complete an assessment of the patient's spine for pain or tenderness. The assessment should include, but is not limited to, palpation of the entire spine (posterior, midline spine, and cervical spine), range of motion (if appropriate). – **If, based on the assessment, the patient is experiencing any pain or tenderness along the spine - Immobilize (See Spinal Assessment Protocol)**

Patient Reliability

Is the patient intoxicated, have an altered mental status, is having an acute stress reaction, at the extremes of age or any other reason that results in an inability to either adequately perceive or communicate symptoms, etc. – **If the patient is unreliable based on the assessment - Immobilize (See Spinal Assessment Protocol)**

CAUTION: This protocol **cannot** be used to rule out need for immobilization in any patient age 65 or older.

SPINAL MOTION RESTRICTION (SMR) PROCESS

1. Establish manual c-spine stabilization in the position that the patient is found.
2. Assess for correct size and properly apply a cervical collar.
3. Move patient from the position found to the location of the ambulance stretcher utilizing a device such as a scoop stretcher, long spine board, or if necessary, by having the patient stand and pivot to the stretcher.
DO NOT permit the patient to struggle to their feet from a supine position.
4. Position patient on the ambulance stretcher.
5. Remove scoop or logroll patient off long spine board or other device (if such device was utilized).
6. A blanket roll or blocks and tape attached to the stretcher may be used to minimize lateral movement of head during transport.
7. Once on the ambulance stretcher, instruct patient to lie still.
8. The head of the stretcher may be elevated 20-30 degrees in a position of comfort.
9. Secure cross stretcher straps and over-the-shoulder belts firmly.
10. Utilize a SLIDE BOARD at the destination to move the patient smoothly to the hospital stretcher.
11. Ensure appropriate documentation of procedure in patient care report.

APPLICATION OF SELECTIVE SPINE ASSESSMENT AFTER FIRST RESPONDER IMMOBILIZATION

In some cases, a patient may be in the process of being immobilized or has already undergone complete spinal immobilization performed by first responders prior to EMT or Paramedic selective spinal assessment protocol. The selective spinal assessment protocol allows the EMT or paramedic to appropriately assess the need for spinal immobilization and does not apply to certified first response services. Spinal immobilization is considered a medical intervention and should not be continued if not medically indicated based on the selective spinal assessment protocol.

1. If the patient has been completely immobilized to a long backboard or scoop stretcher, place the patient on the ambulance cot and into the ambulance when practical for SSAP assessment. Explain to the patient and first responders on scene the plan to perform selective spinal assessment.
2. If the patient has not yet been fully strapped to the long backboard on-scene, SSAP assessment can be performed to determine if immobilization should be continued. DO NOT lift, carry or transfer an unstrapped or unsecured patient to the ambulance. If it is not possible to perform on-scene SSAP (i.e. active highway or roadway), secure the patient to the long backboard and move the patient into the ambulance for SSAP assessment.
3. Perform the SSAP to determine if there are any criteria for spinal immobilization present [Age \geq 65, Unreliable, Distracting injury present, Abnormal sensory/motor exam, Spine pain or tenderness]. This includes log rolling the patient with cervical spine precautions to assess the midline spine and removal of the long backboard. Assessment for midline cervical spine pain/tenderness can be performed with the collar open.
4. If it is determined through assessment that the patient is reliable, has no distracting injuries, has no abnormal sensory/motor findings, and has no spine pain / tenderness, the patient does not need spinal motion restriction / immobilization. The patient can be transported in a position appropriate for their chief complaint.
5. If there are any criteria for spinal immobilization or concerns over spinal injury, then SMR should be performed.
6. In the case of multiple patients requiring spinal immobilization, a longboard, scoop stretcher, or other appropriate patient carrying device can be used over the crew bench seats for spinal motion restriction during transport.