Monterey County EMS System Policy

Policy Number: 4509
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SPINAL MOTION RESTRICTION

I. PURPOSE

To provide guidance regarding the appropriate application or omission of spinal motion restriction (SMR) for trauma patients based on mechanism of injury, patient signs and symptoms, and confounding factors (altered mental status, intoxication, distracting injuries).

II. POLICY

A. The term "spinal motion restriction" or "SMR" has been chosen as the appropriate term to use when referring to the management of patients with a possible acute spinal injury. Research has shown that full spinal immobilization (use of a backboard or scoop stretcher and placement of the patient's neck in a hard cervical collar) can be detrimental for certain patients. The methods described below are designed to prevent changes in alignment of the vertebrae while avoiding the potential deleterious effects of full spinal immobilization whenever possible.

B. SMR should be considered for any patient whose mechanism of injury or clinical signs or symptoms are concerning for the possibility of a spinal injury. The SMR Flowchart in Section IV provides guidance regarding application or omission of SMR.

C. Patients with penetrating trauma to the head, neck, or torso with no evidence of focal neurologic deficits do not require SMR.

D. Patients whose symptoms or physical exam findings change during the course of treatment and transport may require application of SMR for signs or symptoms that are concerning for possible spinal injury.

E. When in doubt about whether application of SMR is clinically indicated, spinal motion restriction should be applied.

F. Documentation shall reflect the assessment findings that indicate the need for SMR or the findings that indicate that SMR may be omitted. Documentation shall include the equipment used to immobilize the patient.

III. PROCEDURE

A. Assessment:

1. Assess the scene and patient to determine the risk of injury. Patients who sustain PENETRATING TRAUMA ONLY (without associated blunt trauma) and who have NO ACUTE NEUROLOGIC DEFICITS do not require SMR.
2. Mechanism alone should not determine if a patient requires SMR. However, significant mechanisms that have been associated with a higher risk of cervical spine injury are the following:
   a) Those included in Step 3 of the Field Trauma Triage Decision Algorithm.
   b) Axial loading/diving injury.
   c) Sudden acceleration/deceleration or lateral bending forces to the head, neck, and/or torso.
   d) Blunt trauma to the head, neck, and/or torso of sufficient force to suspect spinal injury.
3. Age considerations:
   a) Pediatric patients with acute neurologic symptoms or a high-risk mechanism of injury should be placed in SMR.
   b) Pediatric patients with no neck pain or neurologic symptoms and a low-risk mechanism of injury do not require SMR.
   c) Pediatric patients with no neurologic symptoms and a low-risk mechanism of injury who are well-appearing but do not have the verbal ability to answer questions do not require SMR.
   d) Patients > 65 years of age are a special population due to increased instances of decreased pain perception and other disease processes common with aging. Use extreme caution in omitting SMR unless the mechanism of injury is minor and/or the patient is in good health with minimal associated health risk factors (e.g., diabetes, neuropathy, osteoporosis, or other debilitating illnesses).
4. **ALL** of the following criteria **MUST** be met in order to omit SMR:
   a) No high-risk mechanism of injury
   b) No acute neurologic deficits to suggest spinal cord injury
   c) GCS ≥ 14
   d) No communication difficulties (*e.g.*, language barrier, non-verbal patient)
   e) No evidence of alcohol/drug intoxication
   f) No painful distracting injury
5. If **ALL** of the above criteria have been met, a physical examination should be performed as follows. If any acute neurologic deficits or concerning physical exam findings are noted at any point during the exam, SMR is indicated.
   a) Inspect the head and neck for external signs of trauma.

b) Palpate the posterior spinous processes and just laterally to each bone/joint. There should not be any tenderness to palpation.

c) Check for neurological function (motor, sensation) of upper and lower extremities. There should be no acute neurologic deficits.

d) Assess Range of Motion (ROM) by asking the patient to:

- Flex (place chin to chest) and extend (look straight up to ceiling)
- Rotate the head side to side so that the chin is aligned with the shoulder
- Bend head laterally from side to side (to about 45°)
- There should be no pain or neurologic symptoms associated with ROM of the neck.

6. If all of the exam findings are negative, then SMR is not required.

B. Applying SMR:

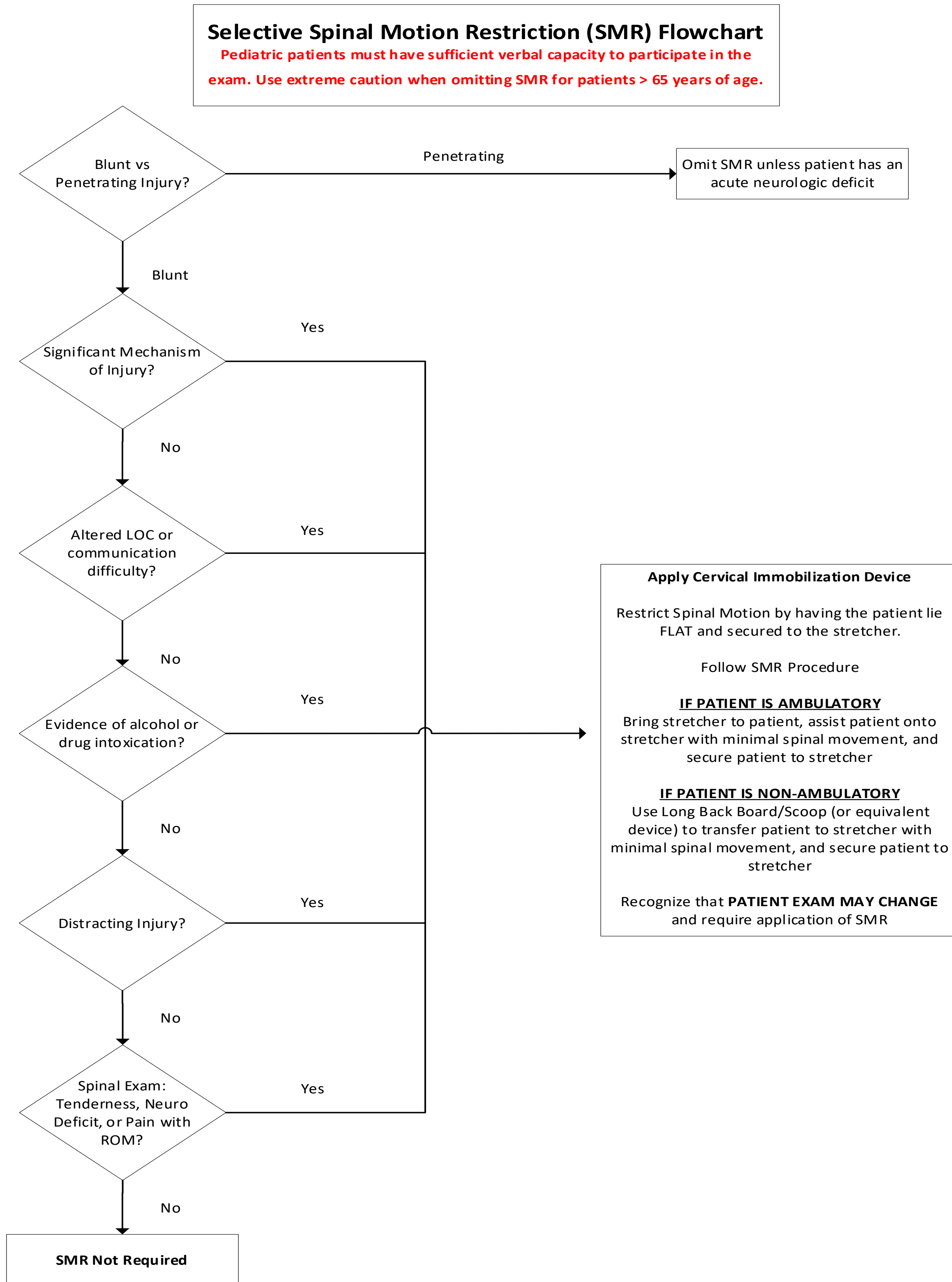
1. Provide manual stabilization of the cervical spine.
2. Appropriately size and apply a cervical collar (C-collar).
3. Long backboards (LBB) and scoops are extrication tools to facilitate transfer of a patient to a transport stretcher and are not intended or appropriate as a means of spinal stabilization. Judicious application for purposes other than extrication requires that the benefits outweigh the risks of application. If a LBB or scoop is used, the device should be removed as soon as it is safe and practical to do so.
4. Apply SMR for the thorax and lumbar areas to the stretcher mattress, using towel or blanket rolls to fill voids.
5. Secure straps across the torso first, followed by the pelvis and lower legs.
6. Apply stabilizing blocks, or other similar device, to both sides of the patient's head and secure to the mattress.

C. Patients who do not initially meet criteria for SMR but later develop signs or symptoms indicative of spinal injury shall have SMR applied.

D. When in doubt about whether application of SMR is clinically indicated, spinal motion restriction should be applied.

E. Infants restrained in a well-fitting full-back car seat may be immobilized and extricated in the car seat.

IV. SPINAL MOTION RESTRICTION FLOWCHART



END OF POLICY

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