Subject: Procedures - BLS
Spinal Motion Restriction Policy

Associated Policies:

I. INTRODUCTION
- A. The purpose of SMR is to protect patients from movement that could worsen an unstable spinal fracture, which is rare (<1% in major trauma victims).
- B. Multiple studies have shown that mechanism of injury is generally a poor predictor of injury, and that many patients are immobilized inappropriately.
- C. Traditional full spinal immobilization, the current standard for almost all patients, may cause airway compromise, skin breakdown, and pain in virtually everyone, which inevitably leads to unnecessary X-rays.
- D. Most significant spinal injuries will present with spine pain, vertebral tenderness to palpation, and sometimes with neurologic symptoms and/or deficits. Alert and oriented patients with true spinal injuries will self-splint. These injuries are best recognized with a careful history and physical exam.
- E. SMR should reduce, not increase, patient discomfort. SMR/immobilization that increases pain should be avoided.
- F. SMR should be accomplished using the most appropriate tool for each specific circumstance. This may include vacuum splints, stiff or soft cervical collars, short boards or KEDS, padded long boards, straps, commercial head stabilizer, soft materials such as pillows and pull sheets.
- G. Penetrating trauma patients without spinal pain or neurologic deficits do not need SMR.
- H. No patient should be placed in SMR without being thoroughly assessed for its need.

II. SPINAL INJURY ASSESSMENT
- A. Determine if there is a potential for unstable spinal injury.
  1. Assess for High-Risk Factors - If any high-risk factors are present, strongly consider SMR.
     - Age >65
     - Meets NCEMS Trauma Triage Criteria (Policy # 7000)
     - Axial load to the head (IE Diving Injury)
     - Numbness or tingling in extremities
- B. Assess for patient reliability.
  1. Is patient cooperative, sober and alert without:
     - Significant distracting injuries
     - Language barrier
- C. Perform a spinal exam
  1. Palpate vertebral column thoroughly for tenderness
- D. Perform a motor/sensory exam:
     - Assess wrist and finger extension (both hands)
     - Assess planterflexion (both feet)
     - Assess dorsilflexion (both feet)

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Associated Policies:

- Check gross sensation in all extremities.
- Check for abnormal sensations to extremities.

E. Are all exam findings normal?
Omit Spinal Motion Restriction

F. Any abnormal exam or finding? - Possible Spine Injury
Apply Spinal Motion Restriction.

III. PROCEDURE:

A. Perform the spinal injury assessment prior to application of SMR.
B. Methods/tools to achieve SMR that are allowable: (less invasive to more invasive) Lateral, semi-fowler's or fowler's position with cervical collar only, soft collars, pillows, vacuum splint or mattress, children's car seats, KED, backboards with adequate padding, head immobilizers or straps.
C. Provide manual stabilization restricting gross motion. Alert and cooperative patients may be allowed to self-limit motion if appropriate with or without cervical collar.
D. Apply cervical collar as needed or as appropriate to limit patient movement.
E. When needed, extricate patient limiting flexion, extension, rotation and distraction of spine.
F. Keeping with the goals of restricting gross movement of spine and preventing increased pain and discomfort, self extrication by patient is allowable.
G. Pull sheets, other flexible devices, scoops and scoop-like devices can be employed if necessary.
H. Hard backboards should only have limited utilization for extrication and for securing certain patient groups.
I. Apply adequate padding or vacuum mattress to prevent tissue ischemia and increase comfort.
J. Place patient in position best suited to protect airway and allow adequate breathing.
K. Ensure patient is secured to the transport gurney with proper seatbelts.
L. Securing the head with head bed and tape can be considered for patient comfort but never without the torso being secured.
M. Regularly reassess motor/sensory function (including wrist/finger extension, plantar/dorsal flexion of the feet and sharp/dull sensation exam if possible).

IV. SPECIAL PATIENT POPULATION CONSIDERATIONS

A. Use SMR with caution with patients presenting with dyspnea. Consideration must be made for elevation of the upper body once patient is secured.
B. Bariatric patients can suffocate when placed flat on their backs. Use devices that would allow a more upright position.
C. Pediatric Patients and Car Seats

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Associated Policies:

1. Infants restrained in a rear-facing car seat may be immobilized and extricated in the car seat. The child may remain in the car seat if the immobilization is secure and his/her condition allows (no signs of respiratory distress or shock). Pediatric patients in car seats that do not support their entire bodies need to be placed in SMR using other means

D. Combative patients: Avoid methods that provoke increased spinal movement and/or combativeness.

E. In the event of a patient being placed in SMR/full immobilization prior to the BLS/ALS transporting unit arrival to the scene, the transporting provider has the discretion to remove or modify SMR if the patient meets the requirements outlined in the spinal injury assessment.

F. CMS/PMS should be re-assessed prior to and after complete removal of spinal precautions. It must be considered that rapid transport to appropriate definitive care is of the utmost importance. This must be taken into account in the management of SMR and major trauma patients.