

7.13 4 Spinal Motion Restriction (SMR) EMSAC JUNE 2026

BLS

INDICATION

Patients with head/neck trauma AND at least one of the following:

- Midline spinal tenderness or new anatomic deformity present
- Focal neurologic deficit present (e.g. weakness, numbness of the extremities)
- Altered level of consciousness
- Distracting injury present (e.g. femur fracture)

CONTRAINDICATION

- Penetrating injury to the neck, unless the trajectory suggests direct cervical spine injury
- ~~• Patients with severe kyphosis or ankylosing spondylitis~~

TECHNIQUE

General principles of SMR:

1. Alert and cooperative patients may be allowed to self-limit motion
2. Limit flexion, extension, rotation and distraction of spine
3. Reduce gross movement of patient
4. Regularly assess sensory and motor function

Cervical collar application:

1. Apply appropriately sized rigid cervical collar (2 people)
2. Ensure proper fit—collar should not hyperextend or hyperflex the neck
3. Maintain manual inline stabilization until collar secured
4. If rigid collar is ill-fitting or the patient cannot tolerate it for anatomic reasons, less restrictive alternatives can be considered (e.g. rolled towels, soft collar etc.)

Rigid Long Board applications:

1. Use adequate personnel (minimum 4 people) for log-roll and transfers
2. ~~Intended for extrication ONLY.~~ AVOID transport patients on rigid long boards unless the clinical situation warrants long board use. Examples of clinical situations for spinal board transport may include:
 - a. Facilitating immobilization of multiple extremity injuries
 - b. Transporting unstable patient where removal of a board would delay transport and/or other treatment priorities. ~~In these situations, long board should ideally be padded or have a vacuum mattress applied to minimize secondary injury to the patient.~~

COMMENTS

- Intact children's car seats are preferred methods of motion restriction for pediatric patients

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- Allowable alternative methods for motion restriction patients that cannot tolerate standard rigid methods due to discomfort and/or anatomic variation (e.g. kyphosis):
 - Pillows
 - Mattress
 - Soft collars
 - Lateral, semi-fowler's or fowler's position
 - KED
 - Manual stabilization using additional rescuers
- Patients requiring physical restraint for agitation/violence should NOT have restraints secured to rigid long boards

DOCUMENTATION

- Indication for device placement
- EMS Personnel responsible for procedure (eprocures.09 and eprocures.10)
- Patient reassessment post-procedure
- Complications if applicable

INDICATION

~~Patients who present following decelerating or blunt force injury suspicious for head or neck trauma with any of the following should have Spinal Motion Restriction:~~

- ~~-Midline back or neck pain.~~
- ~~-Numbness, weakness or paresthesias of the extremities.~~
- ~~-Blunt and or penetrating injury to the head or neck. Penetrating trauma does not require SMR unless spinal injury is suspected.~~
- ~~-Altered mental status of unknown etiology with traumatic injury suspected.~~

~~Spinal Motion Restriction is NOT indicated if the patient meets ALL the following criteria:~~

- ~~-Age <65.~~
- ~~-No decrease or change in baseline mental or neurological status.~~
- ~~-No suspected or witnessed axial load injury to head.~~
- ~~-No numbness, weakness or paresthesias of the extremities.~~
- ~~-No significant distracting injuries.~~
- ~~-Reliable translation for any language barrier.~~
- ~~-No vertebral column injury noted on palpation.~~
- ~~-Patient able to perform motor/sensory exam without deficits:~~
 - ~~○ Wrist or finger flexion (both hands), plantarflexion (both feet), dorsiflexion (both feet).~~
 - ~~○ Check gross sensation in all extremities.~~
 - ~~○ Check for parasthesias.~~

~~EMTs and Paramedics shall apply or direct application of SMR whenever extent of injury is in question or patient history is unreliable.~~

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PROCEDURE

- ~~1. Limit flexion, extension, rotation and distraction of spine.~~
- ~~2. Provide manual stabilization restricting gross motion.~~
- ~~3. Reduce gross movement of patient.~~
- ~~4. Prevent duplicating the damaging mechanism to spine.~~
- ~~5. Regularly assess sensory and motor function.~~
- ~~6. Obtain assistance (minimum 2-person procedure) to apply rigid cervical collar. Alert and cooperative patients may be allowed to self-limit motion, if appropriate, without cervical collar.~~

NOTES

~~-Methods used to achieve Spinal Motion Restriction that are allowable include (less restrictive to more restrictive):~~

- ~~o Lateral, semi-fowler's or fowler's position with cervical collar only.~~
- ~~o Soft collars~~
- ~~o Pillows~~
- ~~o Mattress~~
- ~~o Children's car seats~~
- ~~o KED, backboards with adequate padding~~
- ~~o Head immobilizers and straps~~

~~-In the event that a patient meets inclusion criteria for SMR, but cannot or will not tolerate allowable methods, consider manual stabilization using additional rescuers, tools or techniques to achieve limited spinal motion during extrication and transport.~~

~~-Long spine boards are indicated only in patients who exhibit neurological deficits, decreasing level of consciousness or inability to be screened for discontinuation of spinal motion restriction.~~

Once SMR has been applied to a patient, it may NOT be discontinued in the field