1-06 SPINAL IMMOBILIZATION		First Responder EMT AEMT Paramedic

Spinal Motion Restriction

- SMR describes the procedures and techniques used to care for patients with possible unstable spinal column injuries.
- Goals include utilizing alternative methods to achieve spinal protection in patients with possible spinal injury, while:
  - Reducing gross movement of the patient
  - Preventing the duplication of damaging mechanism to spine
  - Decreasing the risk of negative effects caused by traditional spinal immobilization

Indications/Procedure: See flowchart (*below*), and SMR procedure (*below*)

"Selective Spinal Immobilization"

- The intent of this guideline is to decrease injury and discomfort to patients caused by unnecessary spinal immobilization and use of long spine boards and similar devices.
- Studies show that immobilizing trauma victims may cause more harm than good to the patient.
- Backboards should be avoided for spinal immobilization with conscious patients.
- Placing ambulatory patients on backboards is unacceptable.
- Use of the backboard is recommended in the event of ongoing or potential need for CPR.

This protocol is based on recommendations or position statements from:

- American College of Surgeons Committee on Trauma (ACS-COT) -- 2013
- National Association of EMS Physicians (NAEMSP) position statement -- 2014
- American College of Emergency Physicians (ACEP) position statement -- 2015
- National Athletic Trainers Association (NATA) -- 2015
- PE Fischer, et al. *Spinal Motion Restriction in the Trauma Patient - A Joint Position Statement*. Prehospital Emergency Care, DOI: 10.1080/10903127.2018.1481476 (from ACS-COT, ACEP and NAEMSP) -- 2018

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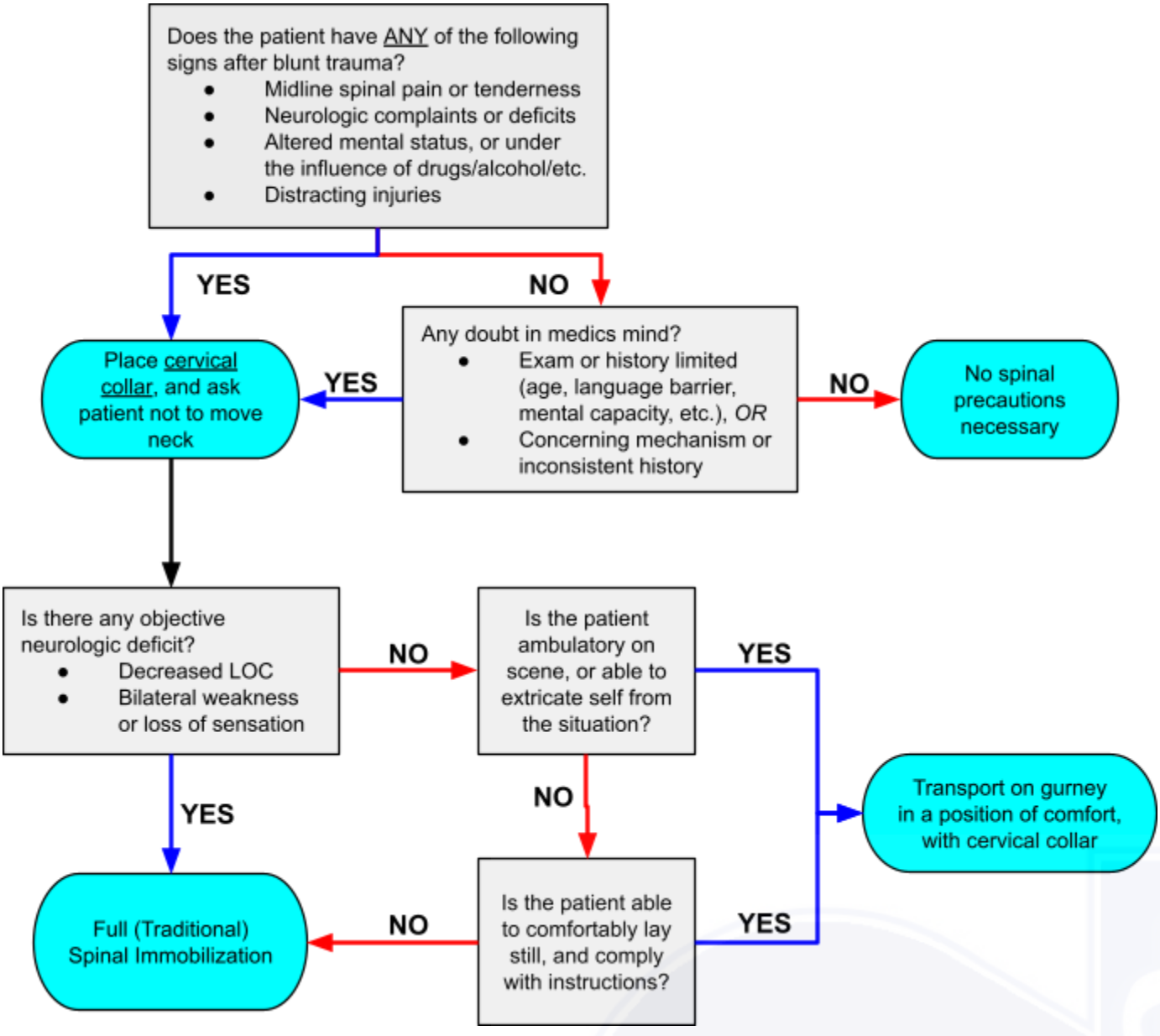
Immobilization Decision Flowchart



Essentially, if the patient is neurologically intact and can comply with commands, they may be extricated with a long spine board (*if needed*) and rolled onto a cot with a cervical collar in place.

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SMR Procedure

First:
Restrict gross motion of the spine:
	• Alert and cooperative patients should be allowed to self-limit motion, and are encouraged to self-extricate if appropriate.
	• Ambulatory patients should be allowed to sit onto the stretcher, and a standing take-down should never be performed.
	• If uncooperative or unable to control body/self-extricate, the patient should be moved by EMS personnel:
	  ○ Standard spinal precautions apply (i.e. holding c-spine, multiple provider lifts, etc.) to limit distraction of the spine.
	  ○ Use sheets, scoops, or other devices as needed.

Then: Apply cervical collar:	• Patients who are unable to tolerate cervical collar may benefit from soft collars, pillows, or other padding.

If a long spine board (LSB) or similar device is utilized for extrication:	• Patients should be unstrapped and log-rolled off the board as soon as possible, and transported on the ambulance stretcher.
	• May be left on LSB if:
	  ○ The device is being used for other (e.g. extremity) immobilization.
	  ○ If removal would delay transport of an unstable patient.
	• If any device is used, apply adequate padding to prevent tissue ischemia and increase comfort.

Finally: To achieve SMR:	• Place patient in position of maximum comfort on the gurney (supine, lateral, semi fowlers, or fowlers). • Tools to achieve position of comfort include, but are not limited to: pillows, children's car seat, scoop, vacuum mattress. • If patient experiences negative effects of with any of the SMR methods used, alternative methods should be considered.
Evaluation & Monitoring:	• Neurological exam documentation is MANDATORY, including serial exams and reevaluation after each transfer/intervention.

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Removal from Long Spine Board (LSB)

- Backboards/scoops are useful tools for carrying non-ambulatory patients to a cot.
- Patients who do not need a backboard should be slid off of the device onto a cot.
- If the immobilization process is initiated prior to the arrival, the highest level of provider should reassess the patient and, STOP and perform spine injury assessment to determine the best course of action.
- Determination that immobilization devices should be used or removed if already placed should be made by the highest level provider on scene.

Notes:

- Backboards have not shown to be of any benefit for spinal injuries, and may cause harm.
    - There is evidence that backboards cause unnecessary pain, induce agitation. change the normal anatomic lordosis of the spine, cause pressure ulcers, and compromising respiratory function.
    - SMR has been shown to limit respiratory function an average of 17% (worst with LSB and the elderly).
    - Use SMR with caution with patients presenting with dyspnea, and position appropriately/to comfort.
- Self-extrication from a vehicle with or without assistance is likely better than standard extrication procedures.
- Elderly patients are at much higher risk of spinal injury, and may have minimal symptoms.
- “Full spinal immobilization” includes backboard, scoop, vacuum splint, or agency approved device, though the same stabilization can be achieved with a cervical collar and appropriate securing of the patient to the cot.
    - Consider improvised immobilization (e.g. towel rolls or a SAM splint) if needed to prevent airway compromise or worsening spinal injury if the rigid cervical collar cannot be correctly sized to the patient

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Special Circumstances/Populations:

Penetrating Trauma	• Penetrating trauma victims benefit the most from rapid assessment and transport to a trauma center without spinal immobilization/SMR. • Cervical collars and/or long spine boards (LSB's) are *contraindicated* in penetrating trauma, unless there is evidence of spinal cord injury (i.e. bilateral extremity neuro symptoms).
Pediatrics/Car Seats	• Infants restrained in a rear-facing car seat may receive SMR (cervical collar placed) and be extricated in the car seat. • Children may remain in the seat if SMR is secure (c-collar and 5-point harness) and condition allows (no signs of respiratory distress or shock) • Children restrained in a booster seat (without a back) need to be extricated and receive standard SMR procedures.
Pregnant	• Left lateral decubitus position is preferred after 20 weeks
Interfacility Transports	• LSB do not have a role for transport between facilities. • If the sending facility requests EMS to use a LSB for transport, EMS providers should discuss protocols with the sending physician before transporting a patient. • EMS providers may use their discretion to transfer a patient to a gurney once in the ambulance, especially for prolonged transports.

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