

MEDICAL CONTROL GUIDELINE: SPINAL MOTION RESTRICTION (SMR)

DEFINITION: Spinal Motion Restriction (SMR) describes the procedure used to care for patients with possible unstable spinal injuries. SMR includes: Reduction of gross movement by the patient; prevention of additional damage to the spine; and regular reassessment of motor/sensory function.

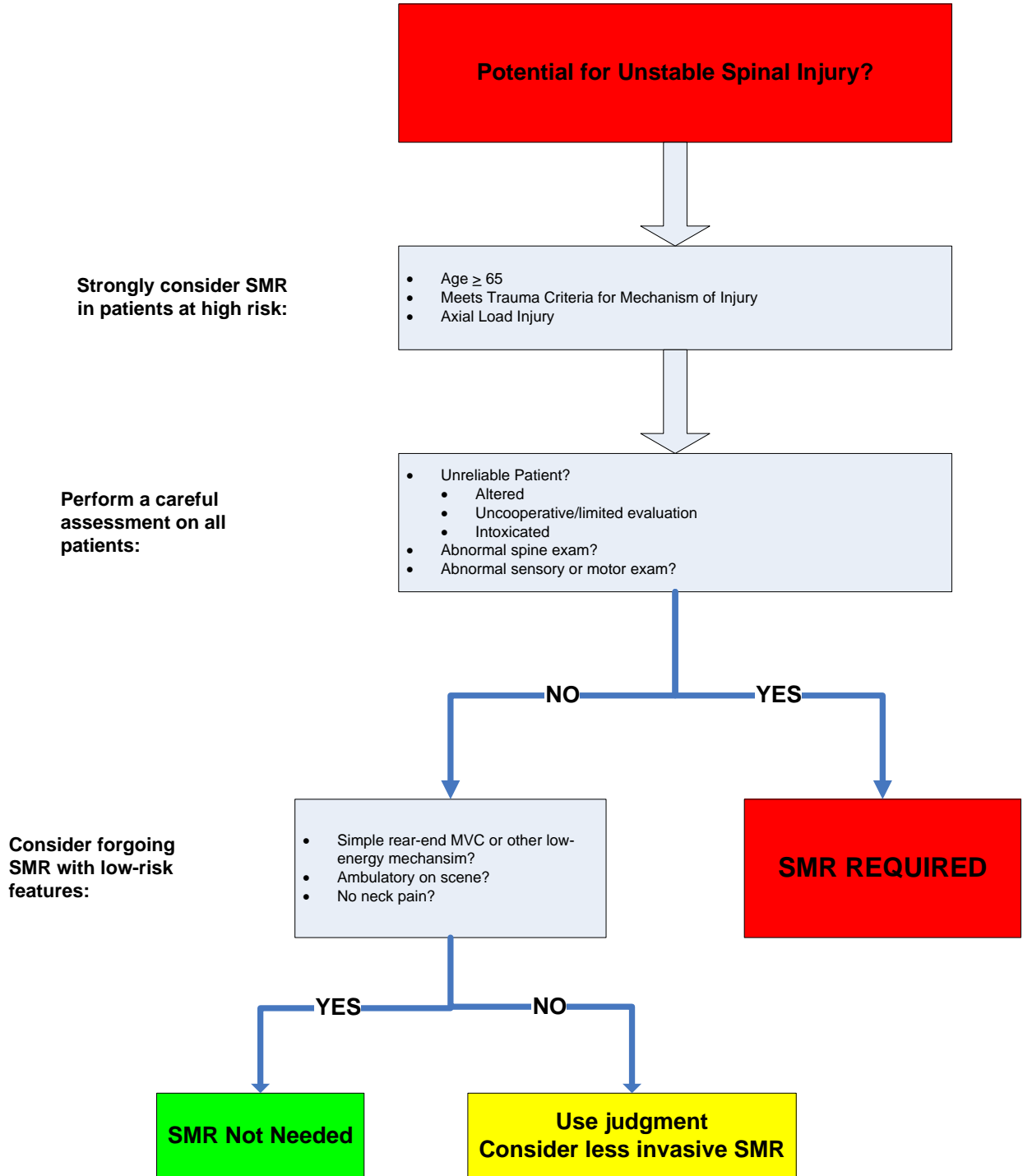
PRINCIPLES:

1. There are multiple methods of SMR; current evidence does not support any one method over another. In addition, there are harmful side effects of SMR that must be considered.
2. SMR Methods : (least to most invasive) cervical collar in fowler's, semi-fowler's or supine on the stretcher, vacuum mattresses/ scoops / skeds, shortboards and keds, backboard and head blocks with straps.
3. Prehospital provider assessment will determine what method is needed. Every patient with trauma must receive an assessment. If any assessment component is positive, the patient requires SMR.
4. Prehospital provider should use judgment and consider less invasive means of SMR for patients without neurologic findings, but in whom one is still concerned for unstable spinal injury.
5. Ambulatory patients generally do not need a backboard.
6. SMR for penetrating injuries is generally not indicated and transport must not be delayed to apply SMR. Treatment of patients with penetrating trauma should not involve a backboard unless it is required as an extrication device or if there is a significant concomitant blunt mechanism.
7. Safe and proper removal of the helmet should be done by two people following steps outlined in an approved trauma curriculum.
8. Once SMR has been initiated based upon prehospital provider assessment, only hospital personnel should discontinue it. However, if a patient is not tolerating a particular method of SMR, alternate methods may be used when appropriate. In particular, management of the patient's airway may necessitate alternate SMR and should take precedence.

GUIDELINES:

1. An unreliable patient is anyone who is altered or intoxicated. Limited evaluation may be due to communication barrier, uncooperative patient or patient too distracted by other injuries and circumstances.
2. An abnormal spine exam is any deformity or tenderness along the spine.
3. Neurological examination includes: A) Test of sensation and abnormal sensation (parasthesias) in all 4 extremities B) test of motor skills in all 4 extremities with active movements by the patient (avoid just reflexive movements like hand grasp) to include: wrist/finger extension and flexion, foot plantar and dorsiflexion C) Frequent reassessment.

ADULT ALGORITHM:



PEDIATRIC GUIDELINES:

1. SMR requires the patient's head, neck and torso to be appropriately stabilized.
 - a. < 3 years – cervical collar plus backboard with occipital recess or thoracic padding plus straps to secure patient to the board
 - b. 3-14 years - cervical collar plus backboard with thoracic padding as needed plus straps to secure patient to the board
2. Infants in rear facing car seats may be immobilized and extricated in the car seat as long as the patient is stable and does not exhibit signs of respiratory distress or shock.
3. Children restrained in a car seat with a high back should be extricated in the car seat and then be placed in SMR as appropriate.
4. Children in booster seats (without a back) should be placed in SMR as appropriate.
5. Predisposing conditions are any of the following: Family members who fracture bones easily, child with spinal deformity, dysmorphic features, or childhood rheumatoid arthritis.

[Specific conditions include: Down syndrome, hydrocephalus, dwarfism (achondrodysplasia), Klippel-Feil syndrome, mucopolysaccharidosis, Ehlers-Danlos syndrome, Marfan syndrome, osteogenesis imperfecta, Larsen syndrome, juvenile rheumatoid arthritis, juvenile ankylosing spondylitis, renal osteodystrophy, rickets, scoliosis, history of cervical spine injury /surgery.]

6. Abnormal torso exam refers to evidence of substantial torso injury, defined as injuries thought to be potentially life threatening to the thorax including the chest wall, abdomen, flanks, back and pelvis with an unstable chest wall, abdominal distension or significant chest or abdominal tenderness.

PEDIATRIC ALGORITHM

