I. Purpose:

A. To establish a universal guideline for Spinal Motion Restriction in Imperial County

II. Authority:

A. California EMS, Health and Safety Code Division 2.5 [178.–1797.201] and California Code of Regulations, Title 22, Division 9, Pre-hospital Emergency Medical Services.

III. Background:

A. The purpose of this document is to provide a tool for prehospital providers to determine what patients would benefit from Spinal Motion Restriction (SMR).

B. Current evidence suggests an approach emphasizing SMR rather than full spinal immobilization offers similar benefits, and avoids many dangers of the more aggressive full spinal immobilization, including airway compromise, increased imaging, and sacral ulcers.

IV. Policy:

A. Prehospital providers should use trauma indicators as well as judgment to determine the need for SMR.

B. A complete full physical and neurological exam must be completed before the need for SMR is determined.

1. Appropriate SMR need is directly correlated to an accurate history and a physical exam of the spine.
2. A neurologic examination should include:
    a. Mental status
    b. A test of sensation in all four extremities
    c. A test of motor skills in all four extremities, with movements made by the patient.
    d. Frequent re-assessment.

C. Spinal Motion Restriction should be considered for any of the following:

1. Patients that have received a high impact with multiple system trauma and/or meet trauma criteria.
2. Patients that are unable to provide accurate information with suspected traumatic injury.
3. Patients that are unable to complete neurological exam with suspected traumatic injury.
4. Patients with suspected spinal cord injury by clinical exam.

D. SMR should include:

1. Cervical collar, rigid, properly sized
2. Maintenance of a neutral, in-line position on the stretcher
3. Log roll only, or multi person lift technique to keep spine in-line, if spinal injury (at any level, cervical, thoracic or lumbar) suspected or possibly present
4. Backboards should be avoided except in the situations documented below

E. SMR should be used in the following patients (mnemonic: **NSAIDS**):

1. Neurological complaints (ex: numbness, tingling, weakness) or abnormal neurological exam
2. Sixty-five years or older, or patients with significant pre-existing neck or back issues

3. Altered mental status (GCS < 15)
4. Intoxicated
5. Distracting injury (ex: fractures, significant abdominal or back pain)
6. Spinal pain or tenderness

F. Spinal motion restriction, **with a backboard**, is clinically indicated by mechanism of injury if any one of the following indicators is positive:
1. When extricating a patient who is inappropriate or unable to self-extricate.
2. Patients at risk for vomiting, with suspected spinal injury, who are unable to manage their own airway (intoxicated/head injured with altered mental status/etc.) and may need to be turned to their side during transport.
3. Multisystem trauma or multiple long bone fractures in which the backboard is an element of the splinting strategy.
4. Unresponsive, significantly altered, or agitated patients.
5. When removal would delay transport of an unstable patient.

G. Patients with penetrating trauma should not be placed in Spinal Motion Restriction due to increased risk of mortality, unless there is a neurological deficit.

H. If any doubt, err on the side of caution and place the patient in full Spinal Motion Restriction

I. Special Considerations:
1. Children are at high risk for SCIWORA (spinal cord injury without radiological abnormality). This means they may have spinal cord injury without bony injury. Have a low threshold for SMR in pediatrics for any neurological symptoms in trauma, including those with symptoms (ex: numbness, weakness, tingling, or "stingers") that have resolved prior to EMS arrival.
2. Infants and toddlers < 40 lbs who are found restrained in a car seat (not including booster seats) may be placed in modified spinal motion restriction using the car seat, if the patient's condition allows.
3. Patients with rheumatoid arthritis, autoimmune diseases, bone disease, cancer, and chronic steroid users are at high risk for bony injury, and prehospital providers should have a low threshold to use SMR.
4. It may be necessary to remove SMR devices or modify techniques in order to reduce the risk of further injury to patient/s based on the criteria below:
    a. Agitated or restlessness due to shock, hypothermia, head injury or intoxication
    b. Those with respiratory or cardiac issues
    c. Significant kyphosis or other chronic spinal disease
5. Pregnant women, gestational age > 20 weeks, should be placed left lateral recumbent between 15-30 degrees while backboarded
6. Helmets (including full face motorcycle helmets and football helmets)
    a. Indications for removing helmets in the field
        i. Inability to assess or manage the airway and breathing
        ii. Improperly fitted helmet allowing for excessive movement of head

iii. Cardiac arrest
iv. Proper SMR is unable to be performed

b. When removing a helmet, it may be necessary to remove shoulder pads, to properly apply SMR
c. **When SMR and airway is not impeded**, helmets should be left in place and secured to backboard

APPROVED:

Signature on File
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