PRACTICE GUIDELINE

Effective Date: **2-17-04** Manual Reference: **Deaconess Trauma Services**

TITLE: NURSING MANAGEMENT FOR CARE OF PATIENT IN SPINAL PRECAUTIONS

PURPOSE: To outline the nursing management of patients requiring immobilization of the spinal column.

DEFINITIONS:

1. Spinal Immobilization: Immobilization of the entire or portions of the spinal column to maintain a neutral position. The cervical spine cannot be immobilized independently from the rest of the spinal column. For example, the patient may be ambulatory with a cervical immobilization collar in place.
2. Neutral Alignment: The spine is straight, without twisting or bending (no rotation, flexion or extension), with the head in the "eyes forward" position.

GUIDELINES:

1. **Supportive data:**
   a. Spinal immobilization prevents movements that may cause injury to the spinal cord and its nerve pathways when damage to the spinal column is present.
   b. Immobilized patients may be at risk for airway compromise due to aspiration and/or weakness.
   c. Immobilized patients are at high risk for anxiety and altered comfort.
   d. Immobilized patients are at high risk for impaired skin integrity; skin damage may occur after 2 hours of unprotected pressure.

2. **Outcome criteria:**
   a. The patient's initial physiological condition will be established, changes will be detected early and appropriate interventions will be initiated and documented.
   b. Spinal immobilization will be secure enough to allow for safe manipulation of the patient without compromising spinal alignment, should airway compromise occur.
   c. Anxiety and apprehension will be recognized and addressed through frequent communication; patient comfort will be maximized during period of immobilization.
   d. Initial skin condition will be assessed and recorded implementing "4 eyes in 4 hours". Preventive measures will be implemented, changes will be detected early and appropriate interventions will be initiated and documented.

3. **Implementation criteria:**
   a. Spinal precautions will be initiated at the discretion of the nurse or by the order of a physician.

b. Patients who should be considered for spinal immobilization include patients complaining of neck or back pain with or without signs of nerve involvement (e.g., weakness, paresthesia below level of injury) and with a history of:
    i. Degenerative bone disease.
    ii. Motor vehicle crash (MVC).
    iii. Falls.
    iv. Head, neck or facial trauma.
    v. Trauma with a brief loss of consciousness, altered mental status, unconscious or intoxicated.
c. Patients will be placed on bed rest in proper spinal alignment with a rigid collar (refer to spinal immobilization procedure). The patient may be immobilized on a rigid spine board at the discretion of the nurse of order of the physician. The spine board should be removed within 20 minutes of patient arrival to hospital.

4. **Criteria for discontinuing precautions:** Spinal precautions will be maintained until the necessary radiographic studies and/or clinical examinations are completed and reviewed and the responsible physician has ordered discontinuance of spinal precautions. See Spine Clearance guideline.

5. **Assessment:**
    a. Sensorimotor checks (numbness and tingling below level of suspected injury, grip strength and strength of dorsi/plantar flexion) in all four extremities will be assessed on all patients on spinal precautions at the following time:
        i. Immediately before and after initiation of spinal immobilization.
        ii. Before and after any transfer or movements.
        iii. Every two hours and prn.
        iv. Immediately before and after discontinuation of spinal immobilization.
    b. Assess every 2-4 hours and prn for:
        i. Discomfort/pain.
        ii. Level of anxiety/coping.
        iii. Potential for airway compromise (altered LOC, SOB, nausea/vomiting).
    c. Skin integrity around the cervical collar and over bony prominences will be assessed on admission and at least once a shift.

6. **Clinical management:**
    a. Patients immobilized on rigid spine board will be maintained with the head stabilized with towel rolls or foam blocks, and with straps across head, shoulders, hips and thighs, so that the board may be turned if vomiting occurs.
    b. Patients should not be left with only the head secured, as any movement of the rest of the body could result in misalignment of the spine.
    c. Sandbags and IV bags should not be used as head immobilizers because the weight of the bags may shift the spine out of alignment.

7. **Transportation:**
    a. Patients on spinal precautions will be transported in the company of the nurse or other person trained in spinal immobilization management.

b. Patients may not assist a transfer or transfer themselves.
c. All patient transfer maneuvers and repositioning require a minimum of 3-4 persons. Adequate assistance to provide for safe movement of the patient will be obtained prior to initiating any transfer maneuver.
d. All patients will be maintained in neutral alignment during radiographic studies.
e. For radiographic studies the patient will be log rolled, maintaining cervical alignment, by the nurse, physician or other person trained in spinal immobilization. Spinal alignment will be maintained during filming.
f. Patients on spinal precautions who are not on spine boards will be transferred between bed and gurney using a sheet and slide board or other device in a manner that prevents loss of proper spinal alignment (twisting or flexing). Care should be taken that the device does not sag during the transfer maneuver. Provide support at the lumbar and thoracic spine, as well as cervical control.

8. **Comfort:**
   a. Spine boards may be extremely uncomfortable for the patient and should be removed within 20 minutes of arrival to the hospital. Spine boards should be padded when possible.
   b. Consider providing additional padding as needed to achieve neutral alignment.
      i. The lumbar space and the space behind the knees may be filled with a blanket or towel roll.
      ii. In adult patients, 1 – 1-1/2 inches of padding may be placed under the occiput to provide comfort and prevent hyperextension.
      iii. In pediatric patients, padding under the shoulders and torso may be used to prevent flexion of the cervical spine.
   c. Patients with chronic deformities of the spine should be immobilized in their usual body position.
   d. For restless or agitated patients consider hypoxia, hypotension or pain. Obtain orders from the physician as needed.
   e. Provide frequent contact and realistic reassurance to minimize anxiety. Keep call bell in reach at all times.
   f. Initiate pain management protocol as needed. Use caution in patients who have not been cleared radiographically as sedatives and paralytic agents may relax protective muscle spasms.

9. **Positioning**:
   a. Within 20 minutes from arrival to hospital, the patient should be removed from the long spine board. If the patient arrives in the ICU or general ward on spine board, it should immediately be removed via standing trauma order. Physician order does not need to be given for removal of patient from long spine board. Patients with neuro deficits or suspected unstable fractures will be log rolled at regular intervals and prn and maintained in a rigid collar.

10. **Elimination:**
    a. The head of the bed may be slightly elevated only if ordered by the physician if cervical, thoracic, and lumber spines are not cleared.

b. Patients without neurological deficits will use urinals or bedpans for elimination needs. Male patients will be assisted to use the urinal. Female patients will be log rolled onto fracture-style bedpans. An order for urinary catheterization will be obtained from the physician, if necessary.

11. **Skin care:**
    a. Skin care should be performed when patient is turned and under the rigid collar at least once per shift with second person stabilizing the cervical spine.

12. **Reportable signs/symptoms:**
    a. Any changes in sensation or motor function will be reported to the physician immediately.
    b. Complaints of nausea or SOB.
    c. Inability to maintain spinal precautions (e.g., combative & agitated patients, patients with extreme discomfort).
    d. Skin breakdown should be assessed frequently and documented on nursing notes, especially upon admission and discharge from each unit and shift.

13. **Patient/family teaching:**
    a. The patient will be instructed to remain supine without bending or twisting the spine until spinal injury has been ruled out.
    b. The patient will be instructed to notify the nurse for nausea, difficulty breathing, increased pain or numbness and tingling.
    c. The purpose of spinal precautions will be explained as needed to parents/family members and reassurance offered.

14. **Documentation:**
    a. Assessment findings and interventions will be documented in the nurse's notes.

15. **Spinal immobilization procedure**:
    a. Spinal immobilization may be initiated using the following procedure. The procedure may be modified as appropriate to circumstances to ensure stabilization of the spinal column and movements without twisting or bending.
    b. Instruct the patient not to move head or neck.
    c. Manually stabilize the patient's head in the position found; place hands to provide firm support at the base of the skull and along mandible. Call for assistance.
    d. Perform before neurological assessment (movement and sensation in all four extremities).
        i. Move head into neutral "eyes forward" position: Stop if maneuver causes increased pain or discomfort, and splint the head in position found.
        ii. Reassess neuro status after maneuver.
    e. Remove necklace and earrings.
    f. Maintain manual cervical stabilization while second person applies rigid collar.

g. The person controlling the cervical spine should direct other personnel in patient movements. The steps in the maneuver should be worked out and agreed on before the movement begins.
h. At least one person is needed for each position:
    i. Manual cervical stabilization.
    ii. The shoulders and hips.
    iii. The hips and legs.
i. Move the patient into a supine position on the gurney or spine board in a manner that supports the spine without twisting or bending. Do not allow the patient to perform transfer maneuvers. All moving should be done by health care personnel.
j. Care should be taken to provide support to the lower thoracic and lumbar region of the spine during logrolling as these areas may move during this maneuver. Reassess neurologic status.
k. Provide padding as needed to achieve neutral alignment:
    i. The lumbar space and the space behind the knees may be filled with a blanket or towel roll.
    ii. In adult patients, 1 – 1-1/2 inches of padding may be placed under the occiput to provide comfort and prevent hyperextension.
    iii. In pediatric patients, padding under the shoulders and torso may be used to prevent flexion of the cervical spine.
    iv. Patients with chronic deformities of the spine should be immobilized in their usual body position.
l. Instruct patient to remain still. Initiate spinal immobilization protocol.
m. To secure patient to a rigid spine board:
    i. Secure patient using 2-inch tape or straps at 4 pivot points: the legs, pelvis, shoulders and head. Check to make sure that straps across the upper chest do not restrict respiratory effort.
    ii. Maintain manual cervical stabilization until the head is secured; place towel rolls or foam blocks along sides of the head to prevent lateral movement. Tape across forehead, avoiding the hair or eyebrows. Tape across the cervical collar. Do not tape across chin, as airway obstruction may occur.
n. Infants/children in car seats: Children may be secured in their car seats in lieu of removing them and placing them on a spine board.
o. Pregnant women: Once the patient is secured to the spine board, the entire board should be tilted slightly to the left to prevent vena caval compression by the uterus: use blanket rolls or pillows under right side of the spine board.

16. Refer to Cervical Spine precautions and spine clearance, and management of spinal fractures for more information regarding care of spinal fractures.

REFERENCES:

- RESOURCES FOR OPTIMAL CARE OF THE INJURED PATIENT: 2014; Committee on trauma American College of Surgeons.

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JAN 06	JAN 08
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