

## Acute Spinal Cord Injury (SCI) Management

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**Purpose Statement:** The purpose of this guideline is to provide direction in the care of the patient with known or suspected spinal cord injury to ensure safe and timely care with the ultimate goal of preventing secondary injury.

### Procedure:

1. Activation of the Trauma Team (see: Billings Clinic Trauma Team Activation Guideline)
2. Backboards should be removed as early as possible
3. Maintain spinal precautions, logroll, and use of C-collar until all imaging is complete and assessment/clearance has been performed by a qualified provider
  - a. Clearance of precautions and activity orders (including range of motion) should be ordered/dictated by the Neurosurgical provider
  - b. See: CPG Cervical Spine Management for cervical spine injuries / clearance of c-spine
4. Ensure full trauma workup
5. Blunt/Penetrating Injuries:
  - a. Complete imaging of the spine via CT should be obtained (to discover or rule out synchronous spine injury)
  - b. MRI will be obtained at the discretion of the Neurosurgical provider
  - c. Initiate antibiotics <60 minutes for penetrating SCI
6. All the following consultations should be obtained if not already involved in care:
  - a. Trauma
  - b. Neurosurgery
  - c. Physical & Occupational Therapies
  - d. Respiratory Therapy
  - e. Social Work
  - f. Physical Medicine & Rehabilitation (PM&R)
  - g. Psychiatric Services (as deemed appropriate for deficits, etc. – determined by primary care team)
7. Patients with spinal cord injuries should be admitted to the Surgical Intensive Care Unit (SICU) at the discretion of the Neurosurgical and/or Trauma provider with the following treatment priorities:
  - a. Restoration/maintaining euvolemia and normotension
  - b. Avoid hypotension
    - i. Blood pressure parameters as determined by Neurosurgical provider
  - c. Initiation vasopressor for supraphysiologic goal MAP at discretion of Neurosurgical provider
  - d. Prevention of hypoxemia (maintain SpO<sub>2</sub> >93%)
    - i. Ensure proper ventilator management

1. Consider modifications beneficial to SCI populations such as:
  - a. Consider additional criteria for weaning/extubation including:
    - i. NIF
    - ii. Rapid shallow breathing index
  - b. Daily Forced Vital Capacity (FVC)
- ii. Closely monitor patients who are not intubated for signs of respiratory failure
  1. Consider use of EtCO<sub>2</sub> monitoring (high risk of insidious ventilatory failure – especially if injury is at C5 or above)
  2. Pulmonary toilet
    - a. Cough and deep breathing, Incentive Spirometry (as ordered by primary care team)
    - b. Quad cough education
  - iii. Consider early tracheostomy after cervical stabilization if appropriate (as determined by Trauma provider)
- e. Treat bradyarrhythmias
- f. Ensure proper skin care and assessment
  - i. Q2 hours turns
  - ii. Specialty bed (only if specifically requested by Neurosurgery or Trauma physician)
  - iii. Floating heels/PODUS boots
- g. Initiate VTE prophylaxis as soon as possible (as determined by the primary care team)
  - i. See CPG\_VTE Prophylaxis Guideline
- h. Early referral for inpatient rehabilitation services as appropriate

#### **DEFINITIONS:**

Acute spinal cord injury: defined as sudden onset damage or trauma to the spinal cord resulting in loss of tissue integrity, which can lead to impaired function, reduced mobility and/or sensory dysfunction.

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## References

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