

Spinal Trauma



Make early contact with ARV/PIPER for advice from the major trauma services and to initiate retrieval.

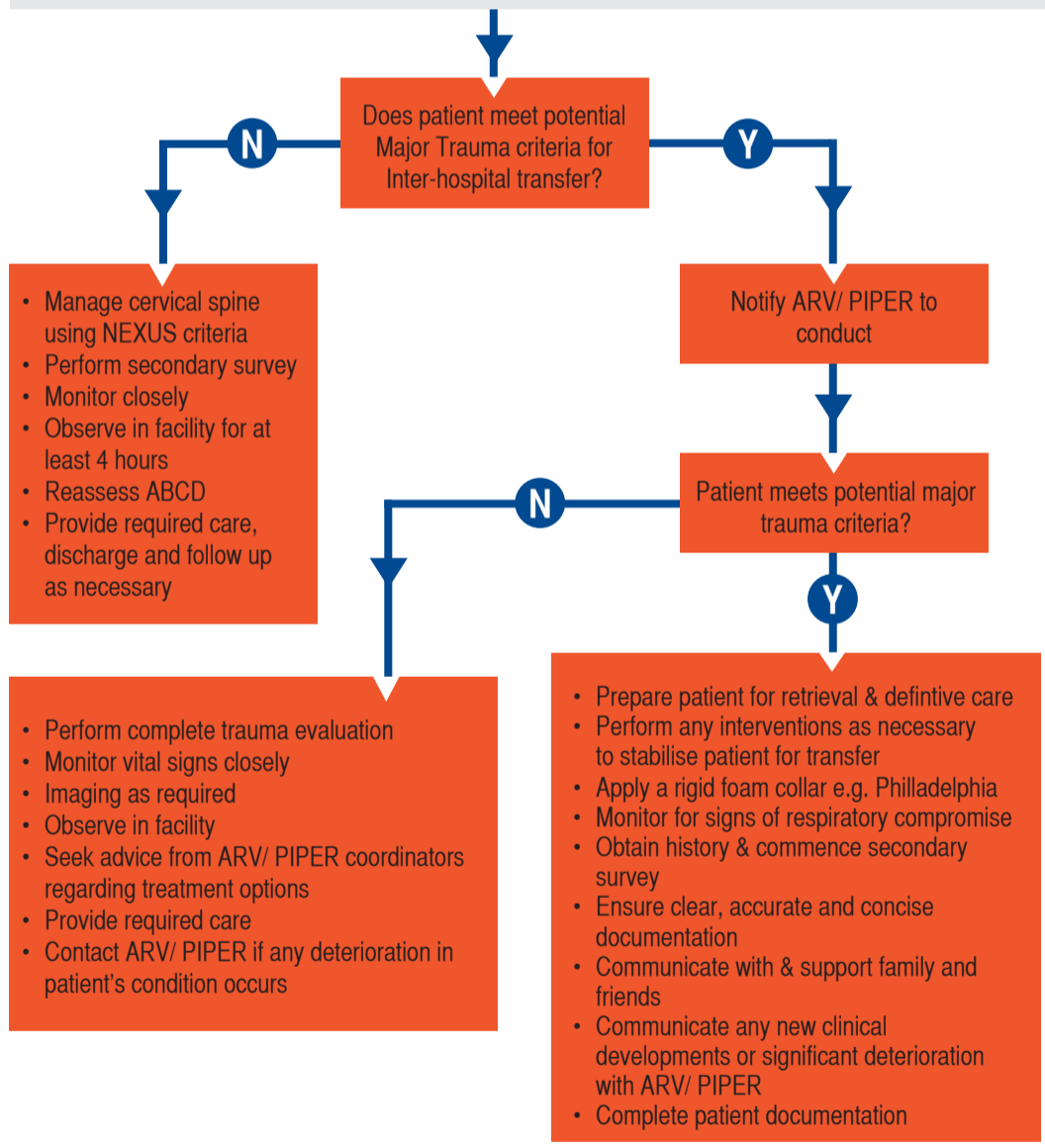
- Ascending spinal cord injury requires frequent monitoring.
- Neurogenic shock displays features of hypotension, bradycardia & hypothermia.
- Spinal cord injury (SCI) patients are at risk of passive regurgitation & subsequent aspiration.

Early Activation

- Gather vital information
- Activate Trauma Team
- Designate roles
- Set up to receive patient
- Ensure safety using PPE

Primary Survey

AIRWAY / C-SPINE	BREATHING	CIRCULATION	DISABILITY	EXPOSURE / ENVIRONMENT	ADJUNCTS
<ul style="list-style-type: none"> • Protect Airway • Assess risk of aspiration • Prevent bradycardia during airway manipulation • Maintain full spinal precautions 	<ul style="list-style-type: none"> • Identify and treat life threats • Oxygen therapy to maintain SpO₂ 94 - 98% • Assess RR, work of breathing, SpO₂ and symmetry • ETCO₂ monitoring if intubated, maintain 35-45 mmHg 	<ul style="list-style-type: none"> • Insert x 2 large bore IV cannulas • Assess HR/BP/Cap refill • Monitor for signs of neurogenic shock • Identify source of possible haemorrhage & commence cautious fluid resuscitation if required 	<ul style="list-style-type: none"> • Assess level of consciousness • Check pupils • Check BSL 	<ul style="list-style-type: none"> • Fully expose patient • Prevent heat loss • Log roll 	<ul style="list-style-type: none"> • FAST scan • Analgesia • X rays: Chest, Pelvis • Bloods - FBE, X-match, U&E, Lactate, ABG • 12 lead ECG • Insert IDC • Orogastric tube if intubated • AMPLE mnemonic



Key Points

- Spinal cord oedema**
 - Ongoing assessment of the patients neurological function is indicated to assess for symptom extension due to ascending spinal cord oedema.
 - Rising oedema may result in progressive loss of diaphragmatic function & inability to breathe.
- Neurogenic shock**
 - Caused by SCI affecting the 6th thoracic vertebrae or above, leading to loss of sympathetic nervous system control.
 - Compensatory mechanisms are unable to be controlled. The resulting vasodilation leads to hypotension, warm flushed skin yet may be centrally cool & bradycardic.
 - Avoid fluid overload. Use urinary output as an indicator of perfusion and strictly monitor the fluid balance.
- Airway management**
 - High cervical injuries potentiate loss or compromise of both gag and cough responses.
 - Prophylactic, pre-treatment of quadriplegic and high-paraplegic patients with atropine is indicated prior to airway management due to unopposed vagal tone and the risk of bradycardia during pharyngeal stimulation
- Cervical collar**
 - All potential major trauma patients suspected of having a SCI should arrive with a hard collar insitu.
 - Assess for pressure area risk. Apply an appropriately sized, rigid foam collar e.g Philadelphia, ideally within 6/24

Spinal trauma considerations

- SPEED assessment**
 - SPInal Emergency Evaluation of Deficits (SPEED) is a brief assessment which uses foot motor and sensory function to indicate injury severity and C3 dermatome sensation, handgrip strength and location of spinal pain to indicate the level of injury.
 - This new approach to early SCI assessment is an important step as to undertake the complete ASIA assessment requires significant time and training.
- Log Roll**
 - Maintain in-line stabilisation.
 - Inspect the entire length of the neck and back noting any deformity, bruising and lacerations. Palpate for any tenderness or steps between the vertebrae.
 - The cervical spine will be thoroughly assessed after transfer to a major trauma service and specialist assessment, therefore advanced imaging is generally not required in the early stages of SCI.

Inter-hospital Transfer Guidelines (Discuss via ARV/ PIPER)

Paediatric Major Trauma Patient (MTP) & SCI	Adult MTP & SCI	Isolated SCI
Royal Children's Hospital	Major Trauma Service Inter-hospital transfer	Victorian Spinal Cord Service – Austin Health