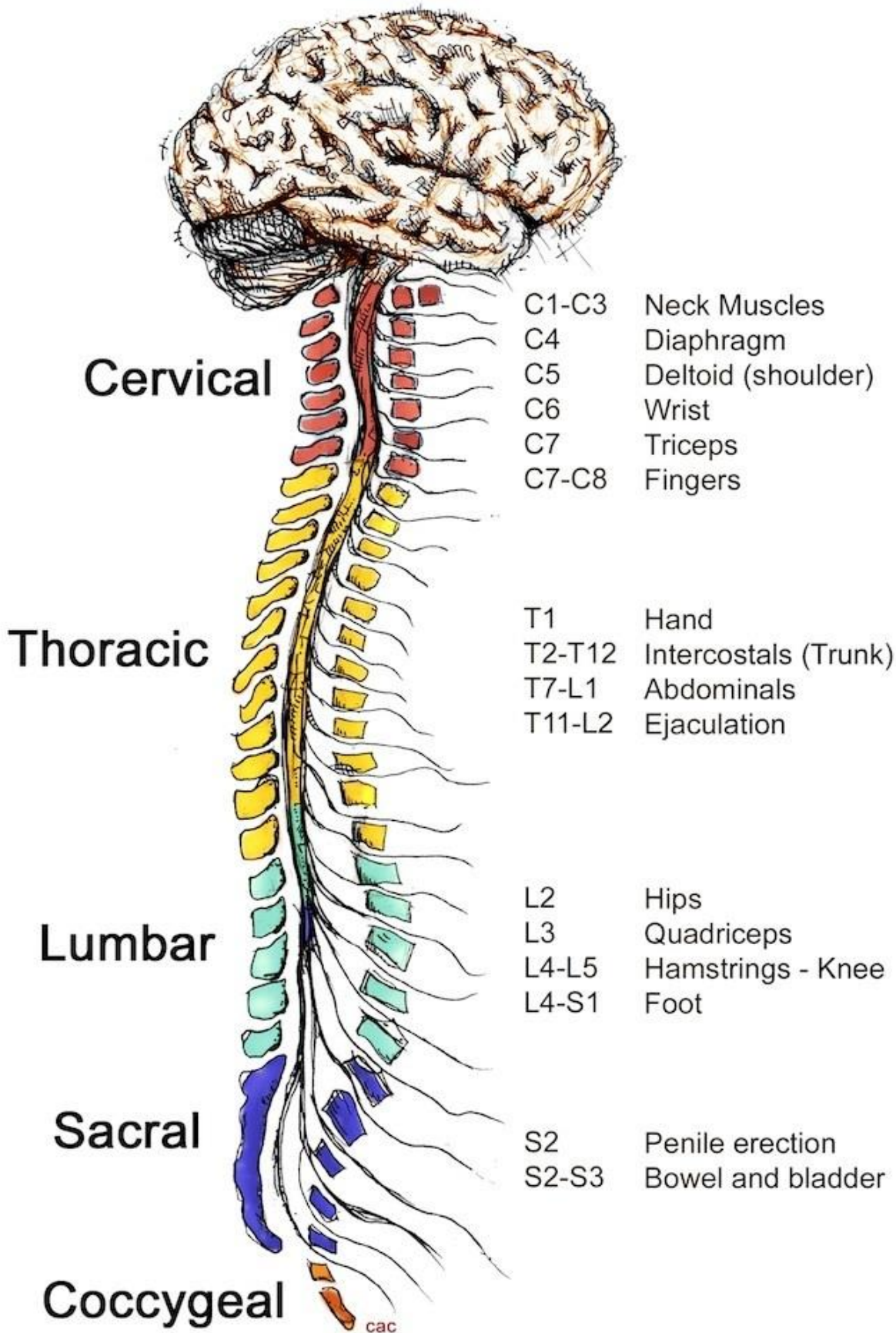




Spinal Care

AIM: The aim of this guidance is to provide hospital staff with information for the safe care and management of an adult with a suspected or confirmed spinal injury, who is being cared for outside of a specialist spinal cord injury unit.

- Spinal patients to be nursed on a nimbus 3 only when the spine has been cleared, otherwise to be initially nurses on a foam mattress.
- Spine to be cleared by a consultant on secondary survey and documented clearly.
- Refer all spinal cord patients to the spinal consultant if this has not been done by the trauma co-ordinator.
- 2-3 hourly repositioning at all times, if you are unable to do this please state why on your documentation.
- All patients to be assessed for pressure damage and protection on each roll.
- Spinal Bowel management plan to be in place from admission.
- Pressure care to be maintained at all times.
- Monitor for autonomic dysreflexia.
- Spinal clearance algorithm to be followed.



Authors: K.Southgate - adapted from Spinal Cord Education Booklet. Dr T Lowes - Spinal Clearance Algorithm

◆ Date: 30/5/2022

◆ Revision Due: 30/05/2024



Spinal checklist- South Tees

Patients name:

NHS number:

Date:

Admitting nurse:

- Patients to be nursed on a foam mattress until spinal clearance.
- Spinal patients are to be nursed on a nimbus 3 only when spine cleared.
- Spine to be cleared by a consultant.
- Pressure care prevention - 2/3 hourly turns and repositioning.
- Spinal patients who have pressure sores are to use betadine soaks on gauze and applied to the wound as advised by Mr Mecci.
- Bowel management plans to be in place for all spinal patients.
- Refer all spinal cord patients to the spinal consultant if this has not been done by the trauma co-ordinator.

Spine cleared by.....

Date cleared

Date and time moved onto Nimbus 3:.....



Chart of Injuries

Indicate injuries on the diagrams below: (Please date and time injuries)

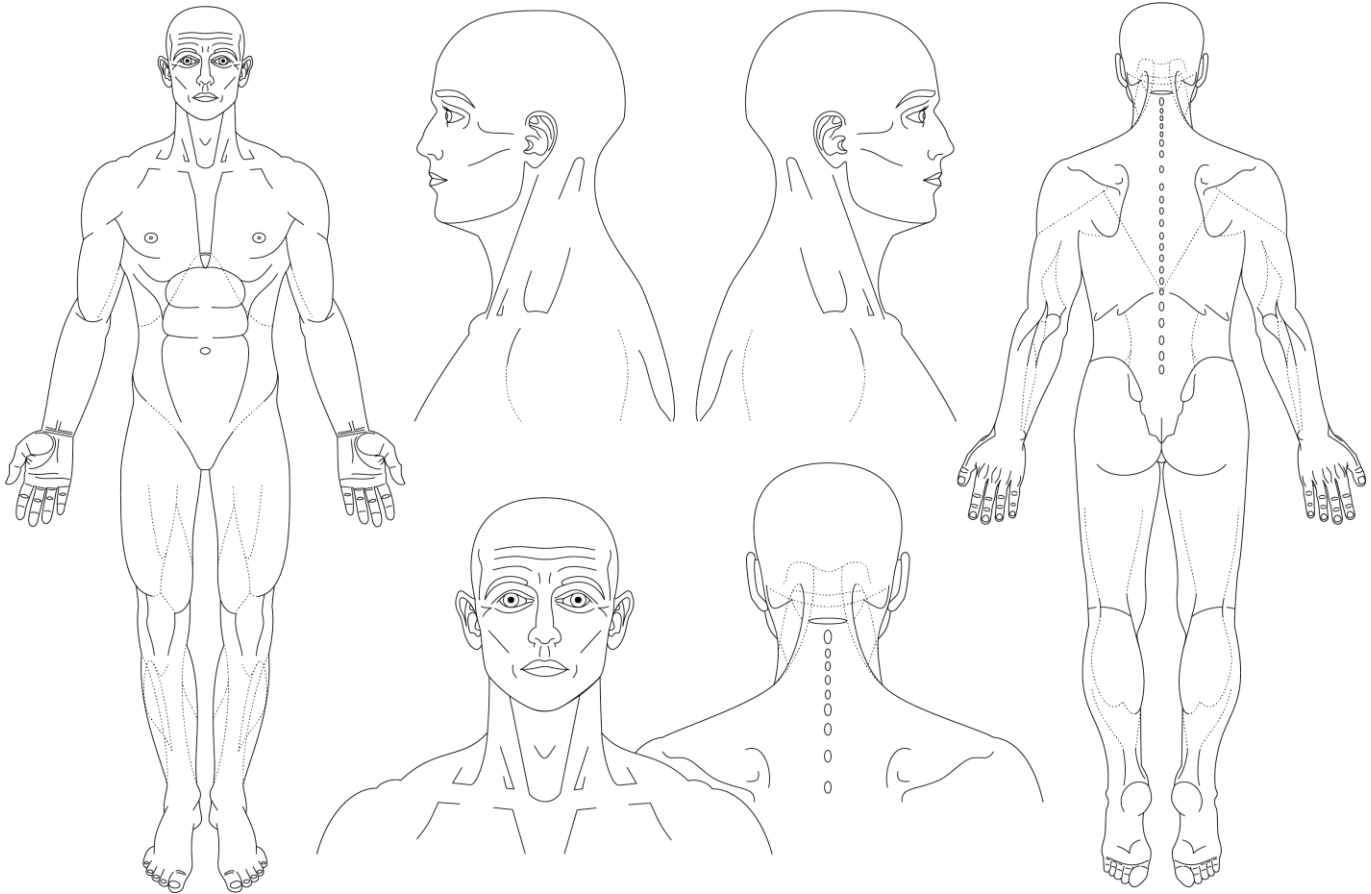


Chart of Injuries Indicate injuries on the diagrams below: Chart Scheme Please use the following symbols to represent the injuries sustained.

Please write details below if necessary.

Fracture: #

Haematoma: //

Incision: -

Puncture: □

G Abrasion: >>>>>

Other: write details



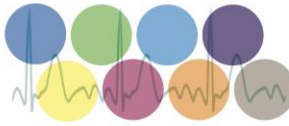
Spinal Pressure Relief

Rationale: Failure to nurse on the correct mattress can potentially risk secondary spinal cord Injury

Action:

- All trauma spinal patients are to be nursed on a nimbus 3 mattress once the spine is cleared, foam mattress is to be used initially/ if this is not available there is a hybrid which can be used without the box.
- 2-3 hourly repositioning - Log Roll (4 hourly).
- Regular physio for passive movements.
- Heels to be offloaded slightly with kerrapro heels or a small, rolled towel/pillowcase. Legs not to be lifted into the air but slightly elevated to allow for the kerrapro/towel to be inserted.
- Kerrapro to be used under collars to prevent pressure damage.
- Aspen collars to be fitted correctly (See NIC if any problems).

Exceptions: None



Spinal Clearance

Rational: Failure to clear the spine can potentially risk secondary spinal cord injury. Therefore, it is of maximum importance that the cervical spine is cleared according to trust protocol.

Action:

- All spinal patients need to have their spine cleared by a consultant before relaxing spinal procedures.
- Spinal clearance must be documented clearly in the patient's notes.

Exceptions: None



Spinal Clearance in the Adult Trauma Patient

AIM: To provide evidence-based guidance for managing adult trauma patients who are at risk of cervical spine injury

Key Points

1. Take **Standard Spinal Precautions** for those at risk of Spinal Injury
 - a. High energy impact.
 - b. Fall greater than patients own height.
 - c. Significant blunt trauma - mechanism of injury unknown or
Age > 50yrs
2. **CT Head & Neck & Thoraco/lumbar spine** (as part of Trauma CT)
3. **Consultant ICU decision** (based on Consultant Radiologist report) within 48hrs.
4. Follow **Spinal Plan A, B, C or D**

All patients involved in blunt trauma must be assumed to have an unstable injury to their spine; the incidence is approximately 2% and increases up to 34% in the unconscious patient. 50% of spinal injuries occur in the thoracic or lumbar spine; 20% at two levels.

Immobilisation with full spinal precautions for prolonged periods creates difficulties in intensive care units. Spinal immobilisation is associated with pressure sores, pulmonary complications and increased ICU stay. Log-rolling also has significant nursing implications. Cervical collars can impede airway management and are difficult to maintain in agitated patients.

In the neck, ligamentous disruption without a major bony injury may lead to instability. Recent studies have shown that modern helical CT scanning with reformatting can demonstrate subtle abnormalities that indicate disruption of two or more of the three columns of the spine. Although MRI may occasionally detect single column ligamentous injuries not shown on CT, these are *not* unstable injuries and MRI transfer is time-consuming and carries its own risk.

Unstable injury to their spine; the incidence is approximately 2% and increases up to 34% in the unconscious patient. 50% of spinal injuries occur in the thoracic or lumbar spine; 20% at two levels.



Adult patients involved in significant blunt trauma

- High energy impact
- Fall greater than patients own height
- Mechanism of injury unknown
- Age > 50yrs

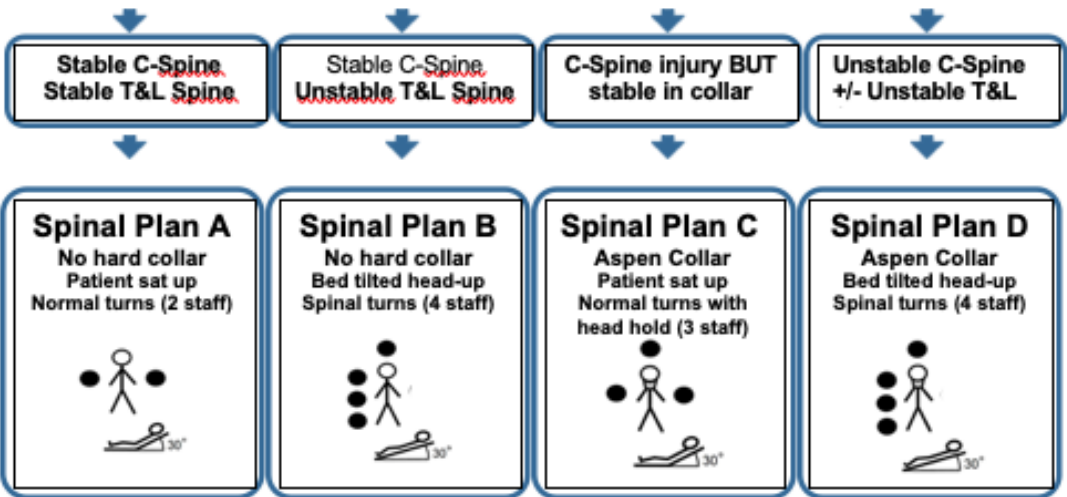
And: GCS < 15 or any other reason to exclude reliable clinical assessment



Standard Spinal Precautions

- 'Sandbags' & tape (Only add C-Collar when rolling/waking)
- Standard mattress (non-deflatable)
- Nurse flat with 30 degrees head-up tilt of bed
- 4 - person Log-roll

Consultant Radiologist written CT report and ICU Consultant decision within 48hrs (if remain GCS <15)
AND
No clinical suspicion of spinal cord injury (e.g. Limb paraesthesia/paraplegia or unexplained hypotension or asystole)



Cervical Spine Clearance in the Conscious (GCS 15) Patient

If the patient is or is expected to be conscious (GCS 15) within 48hrs, then the cervical spine may be cleared clinically if all of the following criteria are met:

- No central neck tenderness
- No neurological deficit
- Patient able to focus on examination (no delirium/severe distracting pain)
- No confounding issue such as impaired judgement due to drugs/alcohol/electrolyte disturbance.
- No pain on active movement turning 45 degrees left and right



Flowchart Detail

No Spinal injury on CT

1. CT has been **reported on PACS by a Consultant Radiologist** (or Consultant validated SpR report) as **No abnormality of cervical/thoracic/lumbar spine** (i.e., no bony injury/normal alignment)

And:

2. No clinical evidence or history of spinal cord injury (i.e., paraplegia/paraesthesia of upper or lower limbs, or unexplained hypotension or asystole)

- Document clearly in the notes
- Remove all spinal protection and nurse as standard ICU protocol.
- Print PACS report and file in ICU notes

Spinal injury on CT or clinical evidence of spinal cord injury

1. Maintain Standard Spinal Protection
2. Consultant Neurosurgeon/Spinal surgeon (or Neurosurgery/ICU SpR having discussed with Consultant) document in ICU notes clear instructions regarding spinal protection to cover requirement for:
 - a. Cervical collar at all times vs. tape and sandbags with collar only whilst rolling/waking (Request Aspen ASAP)
 - b. Log-rolling
 - c. Sitting up flexed to 40 degrees vs. nursing flat on tilt
 - d. Lateral rotation (supportive pillows vs. rotating bed)
 - e. Deflatable (pressure-relieving) vs. standard foam mattress

No Cervical Spine Injury on CT but Thoracic/Lumbar NOT imaged.

If the mechanism of injury is compatible with a possible thoracic or lumbar spine injury (significant blunt trauma, i.e. polytrauma, fall from height, pedestrian/ cyclist vs. vehicle etc.) but no CT of chest/abdo/pelvis to allow spine clearance, keep patient flat (on tilt) & continue to log-roll, then:

1. When next CT head is performed *but* within 48 hrs request CT of: **Chest/Abdo/Pelvis with reformatting for thoracic & lumbar spine.**
2. Nurse flat (on tilt) and log-roll until images reported as normal on PACS by Consultant Radiologist (or Consultant validated SpR report)

If thoracic or lumbar injury is not considered a possibility, and no CT requested, this must be documented in the notes following discussion with Consultant ICU.

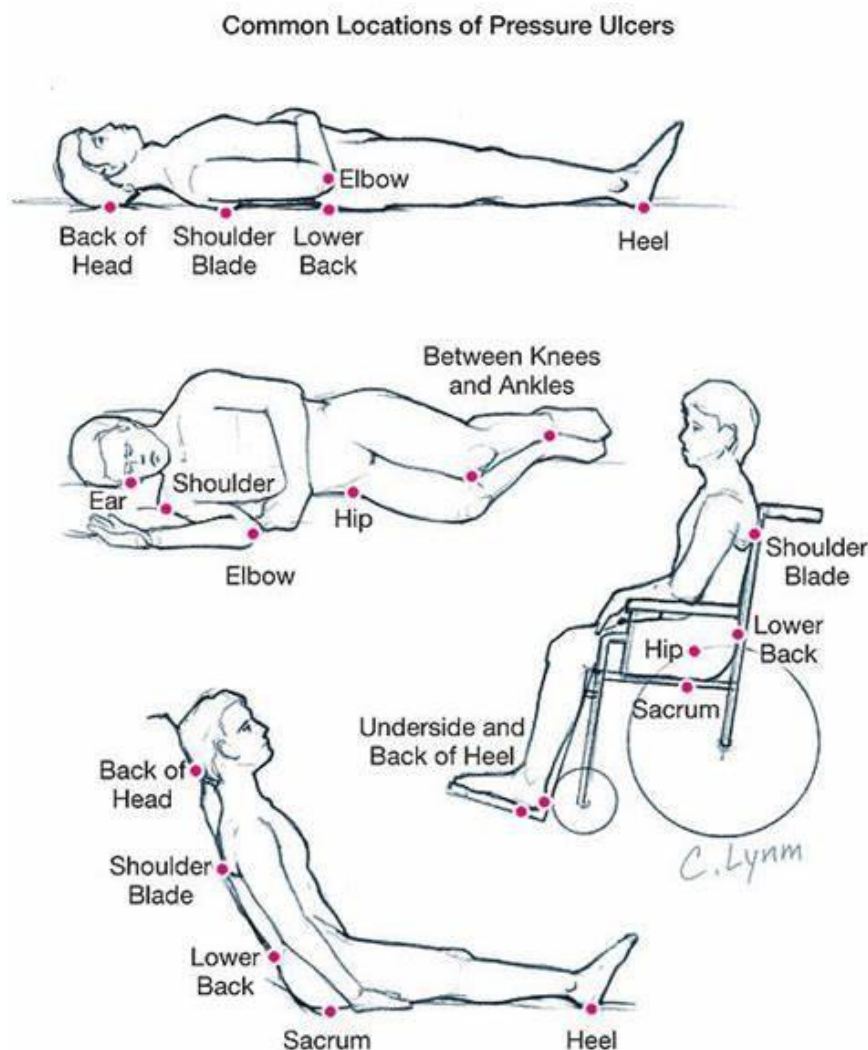
Pressure Care Prevention

Rational: Patients should have strict pressure care management initiated on admission. All spinal patients are at risk of developing pressure sores; therefore, pressure care management needs to be maintained regularly. Spinal patients lose their collagen at the time of injury, so this is a priority of care.

Action:

- To assess pressure areas on admission
- To document any pressure damage and complete the relevant documentation.
- Refer to tissue viability if necessary.
- All areas which could be prone to pressure damage are covered with prophylactic dressings or kerrapro, Pressure sores to be dressed with betadine soaks and gauze

Exceptions: None





Bowel Management

Rational: Acute spinal patients will present with neurological bowel dysfunction. Failure to provide appropriate care could affect the rehabilitation of the bowel and patients' quality of life.

Action:

- A spinal bowel regime should be initiated on admission.
- A rectal examination should be performed by a competent clinician and anal sphincter status and examination details documented on admission.
- Please contact spinal injuries for any further advice if you are unsure of any aspect of this.

Bowel management plan for all spinal patients:

A SCI approx T12 and above – PR to remove any stool in the rectum then insert the suppositories next to the bowel wall. 1x Bisocodyl and 1x Glycerol. After 20 minutes do a digital stimulation to check that the rectum is empty.

Senna and docusate also be to prescribed

Senna 7.5-15mg OD

Docusate 200mg BD

Exceptions: Abdominal trauma, perianal trauma, contraindicative injury.

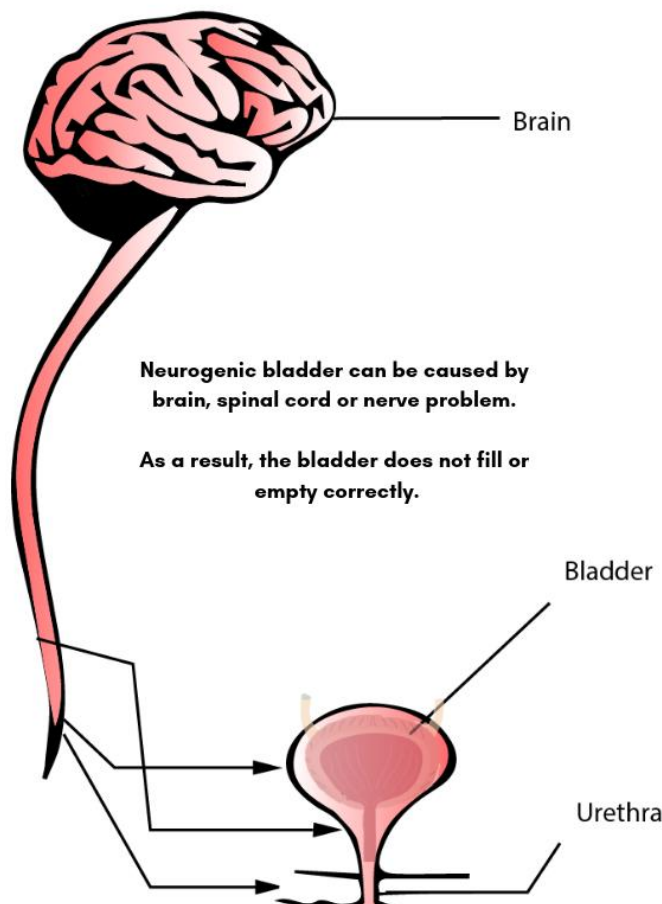
Bladder Management

Rational: Acute spinal cord injured patients present with neurological bladder dysfunction. The paralysed bladder is at significant risk of nosocomial infection. Therefore, it is important to prevent infection, blockages, and bladder distention.

Action:

- All spinal patients should be catheterised on admission and relevant documentation completed.
- Strict fluid balance monitoring should be maintained.
- Good catheter care should be maintained.

Exceptions: None, unless on the advice of the spinal consultant.





Autonomic Dysreflexia

Rationale: This is a potential medical emergency categorised by uncontrolled hypertension and bradycardia. This often occurs in patients with lesions at or above T6 and occurs after the spinal shock phase.

Action:

- Asses the patient for risk, including level of injury, time since injury and previous symptoms.

Exceptions: None



24 HOUR CHECKLIST

To ensure the above elements have been initiated.

Please tick

Print name, date and time

<input type="checkbox"/>	Refer to a spinal consultant.	_____
<input type="checkbox"/>	Appropriate Imaging completed.	_____
<input type="checkbox"/>	2-3 hourly turning regime Initiated.	_____
<input type="checkbox"/>	Commence on GI protection.	_____
<input type="checkbox"/>	Refer to dietician.	_____
<input type="checkbox"/>	Catheterised	_____
<input type="checkbox"/>	Appropriate Mattress In place	_____
<input type="checkbox"/>	Spinal clearance completed and documented.	_____
<input type="checkbox"/>	Flowtrons or TEDS	_____
<input type="checkbox"/>	Pressure Care maintained.	_____
<input type="checkbox"/>	Bowel Management Plan.	_____



References

1. *Panczykowski DM et al. Comparative effectiveness of using CT alone to exclude cervical spine injuries in obtunded or intubated patients* *Journal of Neurosurgery* 2011; 115: 541-549. Case series of over 14,000 patients without a single missed injury on CT showing sensitivity and specificity of greater than 99.9% in detecting an unstable cervical spine.
2. *Hogan G et al. Exclusion of unstable cervical spine injury in obtunded patients with blunt trauma. Radiology* 2005; 237: 106-113. A study was carried out in 1400 patients suffering blunt trauma to the head and neck. 366 patients were obtunded and unable to be cleared clinically despite a normal CT c spine. All scanned with MRI. 4 ligamentous injuries were found, none of which were unstable.
3. *Patel MB et al. Cervical spine collar clearance in the obtunded adult blunt trauma patient: a systematic review and practice management guideline from the Eastern Association for the Surgery of Trauma. J Trauma Acute Care Surg* 2015; 78: 430-41. Reviewed 5 studies with 1,017 obtunded patients. 0% incidence of unstable injuries with high-quality CT, up to 9% stable ligamentous injury on MRI. Recommend cervical collar removal after a negative high-quality CT.
4. South Tees Spinal Cord Education Booklet