

Spinal Cord Injuries - Non-Cancerous - Full Clinical Guideline

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Spinal Cord Injury Management – Key Points

- The guidelines refer to management of any spinal cord neurology, eg spinal abscess, spinal haematoma, tumour, not just traumatic injury
- Use Spinal Care Plans and individualise on admission and evaluate daily / during each shift as appropriate (trust care pathway being developed)
- If appropriate, medical staff will refer to Sheffield Spinal Cord Injuries Centre within 4 hours of a diagnosis of SCI being made via registration on the database, also completing ASIA chart. Nursing staff can contact Osborn One at SCIC, for advice day or night (#6369 x 5609)
- Patients should be NBM, even if not for theatre. Risk of vomiting / aspiration in cervical lesions, high incidence of paralytic ileus in lower thoracic / lumbar fractures / cord injuries. Start clear fluids and build up as tolerated, as per care plan. Gastric protection required as high incidence of gastric ulcers. MUST / dietician referral as trust policy
- TED stockings need re-measuring every 72 hrs, due to early muscle wastage. Alternating foot drop splints (if necessary) 2 hourly with AV boot, complies with both maximum time splint should be in situ and maximum time AV boot can be left off.
- Pressure area care must be 2 hourly, reducing to 4 hourly after approximately 2 weeks. Ensure position changed, maximum 10 degrees laterally and 20 degrees head up (check management plan in notes first)
- Limb positioning – paralysed lower limbs are very heavy and need support when lifted, support leg under knee and ankle, reduces risk of hyperextension injury to the knee and also protects staff
- Bowel management – refer to one of spinal link nurses asap -Monday- Friday (ward 203 out of hours). Management needs to start within 1 or 2 days. Senna should be prescribed after 48 hours but not lactulose. (Management of Constipation in Adults Guideline available on Flo makes reference to SCI bowel management guidelines).
- Depending on the level of lesion, normal observations for the SCI patient can be very different to other patients, systolic blood pressure may be only 80 and pulse 50, this needs to be considered when the medical staff are determining NEWS2 parameters and fluid administration (see guidelines on fluid management)

Preface

Prompt and correct diagnosis and management of Spinal Injury and Spinal Cord Injury (SCI) is vital to reduce the incidence of secondary risk/injury/complications and ensure the patient has the optimum opportunity to make the best recovery possible following the injury.

This policy will encompass the needs of both adults and children presenting to any department within the Trust with a diagnosis of acute or established SCI, listed within any of the first ten ICD coded fields documented in their medical record.

This Policy and guidelines will encompass the full range of patient management and care practices associated with the following SCI patient admission scenarios:

- Emergency admission with acute onset SCI due to traumatic cause
- Emergency admission with acute onset SCI due to non-traumatic (non-cancerous) cause
- Delayed onset or diagnosis of SCI following emergency admission with other (non-cancerous) primary diagnosis
- Re-attende at A&E with delayed onset of signs and symptoms of potential SCI
- Acute onset of SCI following patient fall in hospital
- Acute onset of SCI as a complication of planned orthopaedic spinal surgery
- Acute onset of SCI as a complication of planned vascular surgery
- Diagnosis of acute onset SCI in a in-patient whose accompanying injuries or deteriorating health demands immediate transfer to a regional specialist trauma, critical care or neurosurgical centre before transfer to a SCI Centre
- Acute onset of SCI as a result of sub-optimal care
- Emergency admission of a patient with an established SCI for condition related to their chronic SCI (e.g. Autonomic Dysreflexia)
- Emergency admission of a patient with an established SCI for condition unrelated to their chronic SCI (e.g. Myocardial Infarction)
- Elective in-patient admission of a patient with an established SCI for condition related to their chronic SCI (e.g. Pressure Ulcer)
- Elective in-patient admission of a patient with an established SCI for condition unrelated to their chronic SCI (e.g. Hysterectomy)
- Outpatient or Day Surgery admission of a patient with an established SCI for problem related to their chronic SCI (e.g. Urology)
- Outpatient or Day Surgery admission of a patient with an established SCI for problem unrelated to their chronic SCI (e.g. Ophthalmology)

This guideline does not encompass the immediate management of possible Spinal Cord Compression due to Cancer. Such patients will be referred via the acute trust MSCC referral pathway.

This guideline will ensure that the Trust is working within current legislation and NHS Standards for the management and care of this client group. The advice on legislative requirements is taken NHS England- Spinal Cord Injury 2013

This guideline forms part of the Trust Health and Safety and Clinical Governance Strategy and should be read in conjunction with all other appropriate guidelines within the Trust.

Purpose

- Standardise and improve the management and care, particularly the nursing care, of all adult patients with spinal injuries or conditions and aid reduction of preventable complications.
- Provide information on which paediatric staff can base their care and management for children with spinal injuries.

Aim

- Allow the Trust to support the actions of its staff in the best interest of patients who are admitted with a an actual or suspected Spinal Cord Injury (SCI)
- Prevent the possibility of secondary insult or injury that could cause a Spinal Injury to become a Spinal Cord Injury (SCI) through poor management, sub-optimal care or inappropriate manual handling techniques.
- Provide care and management recommendations and instructions, including moving and positioning of SCI patients, within a clear, evidenced based guide, derived from consensus of opinion, professional specialists and any National Directives.
- Ensure consistent safe practice and effective risk management.
- To help inform the plans of care for patients with spinal injury.

Scope

- All staff who are employed by the Trust, or work within the Trust, who may be required to deliver care for Spinal Injury or SCI Patients on the Trust's behalf.
- Individual role requirements and skills capabilities relating to the management of patients with actual or potential spinal injuries or SCI will be identified for staff in those areas and service departments of the Trust most likely to most frequently encounter SCI patients in the course of their normal working duties.

Introduction

These guidelines unless otherwise stated, reflect the evidence -based and consensus recommendations made by the National Spinal Cord Injury Strategy Board and those published guidelines identified as Best Practice by the Multidisciplinary Association of Spinal

Cord Injuries Professionals (MASCIP). However, when professional, clinical judgements result in variance from these guidelines, this should be documented in medical and nursing records.

It is further recommended that local trust patient care guidelines and individual patient care plans should reflect the expectations of the national guidelines and incorporate published best practice recommendations including, where necessary, that further advice must always be sought from the Trust's spinal injury key-workers or from the nominated SCI CENTRE for Derby Hospitals which is the Princess Royal Spinal Injuries Centre (PRSIC) at Northern General Hospital in Sheffield.

Initial referral to the SCI centre should ideally be made by the responsible consultant or registrar within 4 hours of DIAGNOSIS

Once this referral has been made nursing staff can contact ward Osborn 1 at PRSIC on 01142715609 for advice 24 hours a day.

If the SCI patient is resident in a geographical area not served by the SCI Centre in Sheffield then the PRIMARY REFERRAL will be made to the geographically appropriate SCI Centre.

Abbreviations used in the text

SCI - Spinal cord injury

SCI CENTRE – Spinal Injuries Unit (Sheffield)

Implementing the Guidelines

The guideline is to be available as a complete document in clinical areas where these patients are managed. The basic principles apply to children as well as adults, but the document may require adaptation for paediatric departments to use. The same may apply to other specialist areas e.g. oncology who may need to adapt certain sections.

PRESERVATION OF FUNCTION / POSITIONING / MOVING AND HANDLING / TRANSFERS

- All handling tasks must be led by a registered nurse or health care professional who is experienced and confident to ensure patient and staff safety and promote patient confidence in the care team. The core care plan states the minimum number of staff required for each type of movement depending on level of injury.
- All patients with potential or actual spinal column / or spinal cord injury should be nursed flat in a neutral position and log rolled, until there are written instructions in the notes to say otherwise. There may be a need to nurse a patient with their neck in flexion or extension, due to the nature of their injury or previous history. However this positioning should be carried out by the admitting doctor prior to, or on transfer to the ward and maintained during any position changes, (with further medical supervision if deemed necessary).
- The Ferno and Arjo scoop stretchers are the standard in terms of any transfers from bed to bed or bed to trolley as these maintain spinal alignment, significantly reducing the risk to the patient and reducing the number of times that the patient has to be moved. The Hoverjack, in conjunction with the Ferno scoop can be used for the fallen patient where spinal injury is suspected (see guidelines on the Intranet).
- The ordinary 'patslide' or 'easiglide' type devices should not be used. Both of these devices allow movement of the spine laterally and vertically and thus could worsen the injury.

USE OF CERVICAL COLLARS

An appropriately sized cervical collar (e.g. Aspen) should be used for a patient with an actual or potential cervical spine injury. In the ambulance / A&E setting, further support is provided by X ray compatible head blocks. The blocks can be continued on the ward, however tape should not be used to secure the patient's head to the bed. If the patient is restless or vomits, the movement of the body may also cause movement of the neck and potentially worsen the injury.

Care should be taken not to fit the collar too tightly as this can cause a rise in intracranial pressure or stimulate the vagus nerve causing hypotension or syncope.

Depending on consultant decision, the collar may be changed after 1 – 2 days to a more comfortable one that is measured for the patient from OT splints.

The skin under the collar should be checked at least daily, ensuring that the head and neck are supported manually by a registered nurse whilst the collar is loosened.

MONITORING OF NEUROLOGICAL LEVEL

The patient's neurological status should be assessed and recorded by medical staff on admission to A&E and repeated on transfer to the ward, using the ASIA standard neurological classification of spinal cord injury.

The level of spinal cord injury is the level at which there is altered or absent sensation, weakened or absent movement. However, this may be different to the level of the spinal column injury. The presentation / symptoms of spinal cord injury can be quite complex. The patient may have damage to sensation but not to motor function or vice versa. Also there may be differences noted in each side of the body. A full neurological assessment, including grading of motor power, is generally the domain of medical staff and physiotherapists. However it is important that nurses have a basic understanding of dermatomes and myotomes, to be able to note a rising level of the lesion, particularly in cervical injuries in the acute stages (see respiratory system).

A full assessment should still be carried out by medical staff and recorded in the notes, as often as the patient's condition dictates.

MAINTAIN SKIN INTEGRITY / RISK OF PRESSURE SORES

Support Surface

The patient with spinal column and / or spinal cord injury should be nursed on a firm, flat pressure relieving mattress, to support the natural curves of the spine.

Waterlow assessment

The patient's skin condition should be assessed as soon as possible after admission using the Waterlow score and reassessed as per Trust policy.

Pressure area relief

Two hourly turning is recommended for pressure relief although if the patient has multiple injuries or spinal fractures at different levels. A lateral tilt of 5 - 10 degrees is generally effective for providing some pressure relief, whilst maintaining spinal alignment. The maximum tilt is 10 degrees, as further tilting may cause the spine to shift laterally, and potentially lead to further damage.

Log rolling needs to be planned and co-ordinated as rapid changes of position or prolonged turning onto the patient's left side can stimulate the vagus nerve, potentially leading to cardiac syncope as discussed previously.

RESPIRATORY FUNCTION

The patient with a spinal cord injury is at risk of developing respiratory complications for a number of reasons.

The diaphragm is controlled by the phrenic nerve, which has branches from cervical levels - 3, 4 and 5. If two of these branches are intact i.e. injuries below C4, the patient should be able to breathe for themselves, unless they have concurrent chest problems.

Spinal cord injuries at C3 and above require mechanical ventilation, as the diaphragm cannot function with only one branch of the phrenic nerve. However, the presence of cord oedema may cause the lesion to extend, for example, a C5 lesion may extend to C3 and lead to the patient needing mechanical ventilation.

Vital capacity, a good measure of ventilatory status, is also greatly reduced in cervical / thoracic cord injury.

In addition, a patient with a thoracic or cervical cord injury has paralysis of the intercostal and abdominal muscles (supplied from levels in the thoracic spine), further reducing respiratory function with loss of ability to cough.

Observations

- The initial assessment of respiratory function should be documented including respiratory rate, vital capacity and oxygen saturation levels for future comparison.
- Respiratory observations should be carried out regularly as directed by the medical team, particularly in the first 72 hours, as this is the time of peak spinal oedema. However, the frequency may need to be increased depending on factors such as the presence of other injuries, past medical history etc.
- In order to identify developing complications, respirations should be monitored in terms of rate and depth, whilst observing for any signs of fatigue, or increasing secretions.
- Continuous monitoring of oxygen saturation levels is necessary for at least 72 hours, particularly as a reduction in vital capacity lowers the level of circulating oxygen. However arterial blood gases will give a more accurate picture. Saturation levels should be maintained at >95%, as in addition to aiding respiratory function this helps to maximise oxygen levels at the level of the cord lesion, reducing the risk of cord necrosis.

Oxygen administration

- Oxygen if required, must be humidified to prevent drying of the air passages and to reduce the likelihood of viscous secretions. Due to the changes in fluid distribution in spinal cord injury patients (see cardiovascular system), secretions tend to be very thick and dry. This is further complicated by

the fact that the patient may not be able to cough due to the paralysis of abdominal muscles in cervical / thoracic lesions.

Suction

The Vagus nerve, a parasympathetic nerve which is responsible for slowing down the heart rate, can be stimulated by respiratory suction. This may lead to worsening bradycardia and subsequent cardiac arrest. Suction may require pre-oxygenation

Chest Physiotherapy

Vital capacity is a simple effective measure of pulmonary function following spinal cord injury. Vital capacity is greatly reduced (a lesion at the level of second cervical vertebrae may have only 5 - 10 % of normal vital capacity), however it improves significantly with regular exercise such as hourly deep breathing and the use of an incentive spirometer.

- It is important that SCI patients, particularly with cervical or upper thoracic lesions, or those with chronic chest conditions, are referred to the physiotherapist within 24 hours of admission, as the risk of complications is high. The physiotherapist can devise an individualised plan of care that may be physio specific or continued out of hours by nursing staff and relatives.
- In addition to breathing exercises, a position change every 2 hours is beneficial for the chest as this helps to enhance oxygen transport, mobilise fluid within the lungs, keep the alveoli open and thus help prevent atelectasis.

CARDIOVASCULAR SYSTEM

Spinal cord injury or swelling above the level of T6 disrupts the sympathetic outflow, this controls the vaso-constriction mechanism and is responsible for increasing pulse and blood pressure. In addition, SCI results in the loss of the anti-gravity effects of the abdominal and leg muscles. Consequently, the patient generally has a bradycardia of 50 – 60 beats per minute, and hypotension with an average systolic blood pressure of 80mmHg.

Observations

- The initial assessment of cardiovascular function should be documented including pulse rate, blood pressure, and urine output.
- Regular observations are vital; however the frequency may need to be increased depending on factors such as presence of other injuries, past medical history etc. However, it is the trend rather than the individual observations that is important (standard NEWS2 criteria does not necessarily apply)
- As regards the patient with an isolated spinal column injury, observations are important initially as there is a potential for cord injury.

Pulse

Certain procedures can worsen bradycardia to the point of syncope, due to the effects of the vagus nerve. These include suction and the insertion of a naso-gastric tube; Atropine can be prescribed to use during these 'at risk' procedures.

However, in terms of positioning, prolonged lying on the left side can have the same stimulant effect on the vagus nerve. This should be considered when care needs are being

met, e.g. washing of the back and changing sheets. The use of a saturation probe on the finger during turning will identify any drop in pulse before the patient reaches syncope.

□ A pulse of less than 50 may require atropine. However, this will depend on the patient's 'normal' pulse rate post SCI. The criteria for Atropine should be determined by medical staff for individual patients, with consideration given to tissue perfusion, for example urine output, skin etc.

Blood pressure

A systolic blood pressure of 85 is necessary to maintain perfusion of vital organs, e.g. the kidneys and brain.

□ A systolic of less than 85 should be referred to the medical staff, to assess the need for inotropes, intravenous fluids and more intensive monitoring.

Fluid management

Fluid management requires careful consideration in the spinal cord injured patient due to the effects on the cardio-vascular system, particularly if the patient has multiple injuries.

In trauma patients generally, the response to blood loss / hypovolaemia is a tachycardia. However, the patient with a spinal cord injury is unable to respond in the same way due to the effects on the sympathetic system. Therefore, in these patients hypovolaemia may be masked.

In addition, hypotension is generally identified as a late sign of hypovolaemic shock in the trauma patient, and as per ATLS guidelines may be treated with fluid administration. However as previously mentioned, hypotension is 'normal' for a patient with SCI. Aggressive fluid administration in these patients in the absence of other injuries may potentially lead to pulmonary overload, or the development of a haemorrhagic spinal infarct.

□ Strict fluid intake and output recording should be maintained particularly in the acute stage. The prescribing of intravenous fluids by medical staff should be based on the trend of observations and fluid balance, in conjunction with clinical examination. (Generally, 2 litres over 24 hours is recommended in cases of isolated SCI).

Urine output

□ There may be an initial period of oliguria for the first 5 hours following injury. Regular monitoring of urine output is an effective measure of cardiovascular status, the aim being for a minimum of 0.5 ml/kg/hour in an adult. Diuretics should not be given indiscriminately.

Temperature control

In relation to temperature regulation, patients with spinal cord injury tend to be poikilothermic. This means they can lose heat rapidly and take on the temperature of the surroundings. These factors should be considered when carrying out basic care needs for SCI patients e.g. changing sheets or transferring out of the ward and when reviewing frequency of observations.

Poikilothermia is due to the disruption of sympathetic nerve pathways from the hypothalamus to peripheral blood vessels. This interferes with vasodilation and sweating in hot environments and with vasoconstriction in cold ones. Also, in patients with SCI the 'normal' temperature may be generally lower than average (35.5 - 36.5), therefore a temperature of 37 degrees may be considered pyrexial in a patient with a spinal injury.

□ Once the acute stage is over, temperature should be recorded at least daily throughout the patient's stay, as a pyrexia may be the only indication of a deep vein thrombosis (see separate section)

GASTRO-INTESTINAL SYSTEM

Paralytic ileus

Spinal shock initially causes an absence of peristalsis leading to the potential for a paralytic ileus, abdominal distension and risk of vomiting.

□ All patients with spinal column injury and / or SCI should be Nil By Mouth for the first 48 hours post injury even if bowel sounds are heard. The risk of giving diet and fluids at this stage is that the patient cannot absorb them, and abdominal distension may occur, which can interfere with movement of the diaphragm, and further reduce respiratory function.

□ A naso-gastric tube should not be passed routinely due to the risk of vagal stimulation (see cardio vascular system).

Nausea and vomiting

□ Anti-emetics should be given as necessary to help reduce any nausea. The SCI patient with paralysed abdominal muscles will not be able to actually 'vomit', instead they will regurgitate their stomach contents, with the potential for aspiration into the lungs. The added risk is that due to unopposed vagal activity, and changes in fluid absorption, the stomach contents may be more acidic than normal. This acidic fluid can damage the bronchial lining and further increase the risk of ventilatory complications.

Fluid management

□ In isolated spinal column / cord injury intravenous fluids should be given but not in excess of 2L over 24 hours because of the risk of over perfusion and potential swelling of the spinal cord. However, this may need to be amended in the presence of other injuries.

□ A fluid balance chart should be maintained; ensuring all intake and output is recorded accurately. This is important for early detection of potential overload or dehydration. It also helps to monitor how well the patient is tolerating fluids prior to the amounts being increased.

Introduction of oral fluids and diet

□ After 48 hours the patient should ideally be reassessed for bowel sounds and commenced on clear fluids 30 - 35 ml per hour over 6 - 12 hours, building up to free fluids over a further 6 hours and then diet as able to tolerate. Early feeding helps to maintain the gastro-intestinal mucosa, but should only be commenced

when absorption is confirmed. MUST score and dietitian referral should be completed as per trust policy.

Stress ulcers

There is a risk of stress ulcers following trauma but particularly in spinal cord injury as vagal activity continues and with it the production of gastric acid, whilst the gastro-intestinal tract is paralysed. Histamine antagonists such as Omeprazole or Lansoprazole help to make the gut more alkaline, however this can increase the risk of nosocomial infections, such as pneumonia. Sucralfate may be an alternative; it binds to the raw mucosa, forming a protective layer, without affecting intragastric acidity.

Neurogenic Bowel Care Pathway

Section 1 Digital Rectal Examination

Section 2 Digital Removal of Faeces (Areflex Bowel) Section 3 Digital Rectal Stimulation (Reflex Bowel) Section 4 Autonomic Dysreflexia

Definitions

- **Neurogenic bowel:** *Is the term used to describe dysfunction of the colon (constipation, faecal incontinence and disordered defaecation) due to loss of normal sensory and/or motor control or both (Chung and Emmanuel 2006), as a result of central neurological disease or damage. Damage to the spinal cord and brain interrupts the neural pathways described above and the outcome will vary depending on the location and severity of the damage. Neurogenic function may be reflex, areflexic or mixed. (Multidisciplinary Associations of Spinal Cord Injured Professionals, MASCIP 2021)¹.*

- **Autonomic Dysreflexia:** is a clinical emergency in individuals with spinal cord injury. It is an uninhibited sympathetic nervous system response to a variety of noxious stimuli occurring in people with spinal cord injury at the thoracic six (T6) level and above (Royal National Orthopaedic Hospital NHS Trust).²

It signifies the paralysed body's response to a problem that the individual, because of their paralysis, cannot perceive or identify directly, and is triggered by acute pain or some other noxious or non- noxious stimulus experienced below the level of the spinal cord injury (Multidisciplinary Associations of Spinal Cord Injured Professionals, MASCIIP, 2017).

Patients with neurogenic bowel dysfunction (i.e. due to loss of the normal sensory and /or motor nerve supply to the bowel resulting in constipation, faecal incontinence and disordered defaecation) may require DRE, DRF and/or DRS and are at risk of autonomic dysreflexia (AD).

Bowel dysfunction can be;

- **Reflex bowel dysfunction:** Where there is damage to the brain or spinal cord above an undamaged conus medullaris, where the outcome is constipation with faecal retention, but reflex, uncontrolled evacuation of the rectum can occur.
- **Areflexic bowel dysfunction:** Where there is damage to the conus medullaris or cauda equina (at or below the first lumbar vertebra), where the outcome is high risk of faecal incontinence through the lax sphincter as well as constipation.

1. EMSN PROCEDURAL PATHWAY FOR DIGITAL RECTAL EXAMINATION (DRE) IN INPATIENTS WITH NEW AND ESTABLISHED SPINAL CORD LESIONS (SCL)

Materials required for standard procedure:

- Latex-free examination gloves
- Disposable incontinence sheets
- Lubricating gel
- Chaperone
- Disposable cleaning wipes
- Skin cleansing materials
- Clinical waste disposal bag
- Watch / clock
- Neurotip

	Action	Rationale
1	<ul style="list-style-type: none"> • Confirm that you are capable and confident in your ability to undertake this procedure safely. • Confirm continued appropriateness of procedure for patient in accordance with patient's notes and current nursing care plan. 	<ul style="list-style-type: none"> • To satisfy clinical governance requirements for maintaining patient safety prior to an invasive procedure.
2	<ul style="list-style-type: none"> • Check for contra-indications (e.g. neutropoenia or thrombocytopenia, rectal surgery, rectal trauma, severe pain) 	<ul style="list-style-type: none"> • To protect patient from unnecessary harm.
3	<ul style="list-style-type: none"> • Evaluate patient's capacity, awareness and understanding of procedure. • Provide further information (How, What, Why and Risks) as appropriate before obtaining verbal consent to proceed. • Document verbal consent in case notes. • Refer any refusals to parent consultant. 	<ul style="list-style-type: none"> • To satisfy local Trust requirements for obtaining informed verbal consent and to provide patient with opportunities for questions. • To guarantee that appropriate permission to undertake the procedure is documented if the patient cannot personally give consent at this time.
4	<ul style="list-style-type: none"> • Ensure a chaperone is available as appropriate 	<ul style="list-style-type: none"> • To satisfy local Trust requirements for a chaperone.
5	<ul style="list-style-type: none"> • Monitor and record the patient's blood pressure and/or resting pulse at the beginning of the procedure. • Monitor the patient's condition throughout the procedure as appropriate 	<ul style="list-style-type: none"> • Some patients with sensory incomplete Spinal Cord Lesions (SCL) may experience vaso-vagal symptoms as a parasympathetic response to ano-rectal distension manifesting itself as a significant bradycardia. • Patients with SCL at T6 and above are at risk of developing autonomic dysreflexia (AD) during DRE, manifesting itself as a significant hypertension (see Section 3 below).

EMSN Bowel Care Pathway April 2022 V1.3

	<ul style="list-style-type: none"> • Offer the patient an opportunity to empty their bladder 	<ul style="list-style-type: none"> • To reduce any discomfort during the procedure and risk of AD
6	<ul style="list-style-type: none"> • Wash and dry hands thoroughly. Apply a disposable apron and a pair of latex-free examination gloves. • Do not use vinyl disposable gloves either as a first or second layer. • If intending to proceed with an invasive bowel management procedure after completing DRE, apply two pairs of latex-free examination gloves at this time. 	<ul style="list-style-type: none"> • The practitioner is expected to observe universal infection control precautions in relation to use of aprons and gloves throughout the procedure and during the disposal of faeces and soiled items. • Vinyl examination gloves provide insufficient protection against bodily fluids and their raised seams can damage the rectal mucosa. • The materials used in the manufacture of modern examination gloves and the lack of powder can make repeated re-gloving within a procedure quite difficult. The frequency of DRE, involving repeated contact with the rectal mucosa places the SCL patient at high-risk of developing a latex allergy
7	<ul style="list-style-type: none"> • Maintaining privacy and dignity always, place patient in lateral position as appropriate to their comfort, ability or preference. • Position sufficient incontinence pads to protect bedsheets and arrange sheets and curtains to maintain privacy and protect patient dignity. 	<ul style="list-style-type: none"> • The left side lying position makes the rectum more accessible for DRE for right-handed nurses but is not mandatory. Assume a right side lying position if more convenient or if the patient's skin or comfort is compromised.
8	<ul style="list-style-type: none"> • Examine the perineal, perianal and anal skin for evidence of any irregularities such as suspicious swellings, tenderness, indurations, rectal prolapse, significant lesions, abscesses, bleeding or haemorrhoids not previously noted. • Palpate the perianal area starting at 12 o'clock, clockwise to 6 o'clock and then from 12 anti-clockwise to 6. 	<ul style="list-style-type: none"> • The appearance of new and significant ano-rectal lesions or bleeding must be documented and evaluated by a doctor or specialist nurse before continuing.
9	<ul style="list-style-type: none"> • Check for the presence of ano-rectal sensation as appropriate. • On admission and weekly for the first 6 weeks of acute SCI assess perianal sensation with light touch and pin-prick using a neurotip. 	<ul style="list-style-type: none"> • To assess extent of injury and zone of partial preservation (ZPP). Light touch assesses Posterior Column sensory pathway. Pin Prick assesses Spinothalamic Tract sensory pathway (patient should report if pin-prick feels sharp or dull).

	<ul style="list-style-type: none"> • If necessary, insert 11ml of 2% lidocaine (lignocaine) gel (as prescribed) via syringe before proceeding further. Wait at least 5 minutes for local anaesthetic to take effect before proceeding further. • In patients with an established SCL, discuss the procedure with the patient (and check previous care records) in advance, to ascertain preference regarding the use of local anaesthetic gel 	<ul style="list-style-type: none"> • To reduce patient discomfort during the procedure and reduce the risk of AD. The long-term use of lidocaine gel can result in serious health problems. Most patients with a SCL can tolerate an occasional DRE without recourse to lidocaine. Over time the ano-rectal area becomes de-sensitised to this procedure sufficient that a patient with a long-established neurological bowel disorder can comfortably tolerate the procedure routinely using only standard water-based lubricating gel.
10	<ul style="list-style-type: none"> • Inserting one gloved and lubricated finger through the anal sphincter, note any resistance or reflex contraction of anal sphincter. • Continue to monitor the patient 	<p>Bowel dysfunction can be:</p> <p>Reflex (anal tone present): damage to the brain or spinal cord above an undamaged conus medullaris where the outcome is constipation with faecal retention, but reflex, uncontrolled evacuation of the rectum can occur</p> <p>Areflex (anal tone absent): where the outcome is high risk of faecal incontinence through the lax sphincter as well as constipation</p> <p>See Appendix 1 and 2 for flow charts.</p> <ul style="list-style-type: none"> • A positive ano-rectal response to DRE in a patient with a SCL indicates a potential for reflex bowel emptying exists at this time. • (refer to Reflex Bowel Management - section 3) • An absent ano-rectal reflex indicates the need for the digital removal of any faeces present at this time. • (refer to Areflex (Flaccid) Bowel Management - section 2) • Patients with a new SCI can demonstrate areflex bowel but this may change when spinal shock is resolved. • As per flowcharts in Appendix 1 & 2 DRE should be carried out weekly in the first 6 weeks of SCI to review anal tone and to ascertain if reflex has returned.
11	<ul style="list-style-type: none"> • Rotate index finger gently within the rectum. Note any faeces present or if the rectum is distended with gas. • If gas is present (you cannot feel bowel wall surrounding your finger) move finger gently to one side within rectum to allow gas to pass. 	<ul style="list-style-type: none"> • No injury to patients with SCL using this procedure as described has ever been reported. • Gentle insertion and movement of the finger utilising appropriate and sufficient lubrication will reduce the potential occurrence of AD.

	<ul style="list-style-type: none"> • Keep the finger pad in touch with the bowel wall throughout the procedure. • Sweep clockwise then anticlockwise, palpating for irregularities (suspicious swellings rectal prolapse, lesions, bleeding, haemorrhoids, irregularities, swelling, indurations, tenderness or abscess in the area) internally. 	
12	<ul style="list-style-type: none"> • Assess patient's voluntary anal squeeze by asking the patient to use their anal muscles to squeeze your finger – described/documentated as <i>present or absent only</i> 	<ul style="list-style-type: none"> • Assists in determining the patient's ability to control their bowels. • Describe as present or absent only - 'weak' or 'strong' are subjective measures. • If the practitioner assesses <i>weak</i> tone in new spinal cord injury, there may be scope for improvement.
13	<ul style="list-style-type: none"> • Unless intending to undertake a further invasive bowel management procedure following DRE, i.e. digital removal of faeces (DRF), remove and dispose of gloves into a clinical waste bag. Dispose of all soiled materials into clinical waste bag. 	<ul style="list-style-type: none"> • In accordance with local Trust waste management policy.
14	<ul style="list-style-type: none"> • At the end of the procedure, wash and dry all soiled skin thoroughly and assist patient as required to achieve a comfortable position. 	<ul style="list-style-type: none"> • To maintain patient dignity, comfort and skin integrity.
15	<ul style="list-style-type: none"> • Remove and dispose of apron into clinical waste disposal bag. Wash and dry hands thoroughly. 	<ul style="list-style-type: none"> • To prevent cross-infection.
16	<ul style="list-style-type: none"> • Document result in case notes with reference to Bristol Stool Chart as appropriate if reporting the presence of stool. • Report any exceptions to the guidelines which occurred during the procedure. Include date and time of procedure; consent, irregularities around anus and perianal area; findings from palpation; presence of any blood; name, job title and signature • In the newly diagnosed SCI, DRE should be performed daily to assess for faeces in the rectum. • Sensation (pin prick and light touch), voluntary squeeze and anal tone should be assessed weekly 	<ul style="list-style-type: none"> • To enable consistent reporting and interpretation of results and to monitor the effects of any legitimate interventions or changes to previously established bowel management programme. • To reduce risk of Autonomic Dysreflexia and constipation

	<p>for the first 6 weeks (unless anal tone returns prior to this time).</p> <ul style="list-style-type: none"> In established SCI patient DRE should be performed daily or as per patient preference and routine unless advised otherwise by Spinal Cord Injury Centre or Spinal Link Nurse. If in doubt, default to daily routine. Assess and document plan in nursing notes. 	<ul style="list-style-type: none"> To assess if Spinal Shock has resolved and patient now has a reflex bowel Daily DRE may not be required once a bowel regime is established.
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2. EMSN PROCEDURAL PATHWAY FOR THE DIGITAL REMOVAL OF FAECES (DRF) IN INPATIENTS WITH NEW AND ESTABLISHED SPINAL CORD LESIONS (SCL)

AREFLEX (FLACCID) BOWEL MANAGEMENT

Materials required for standard procedure:

- | | |
|---|--|
| <ul style="list-style-type: none"> Latex-free examination gloves Disposable incontinence sheets Lubricating gel Chaperone | <ul style="list-style-type: none"> Disposable cleaning wipes Skin cleansing materials Clinical waste disposal bag |
|---|--|

	Action	Rationale
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1	<ul style="list-style-type: none"> • Confirm that you are assessed as competent in your ability to undertake this procedure safely. • Confirm continued appropriateness of procedure for patient in accordance with patient's notes and current nursing care plan. 	<ul style="list-style-type: none"> • To satisfy clinical governance requirements for maintaining patient safety prior to an invasive procedure.
2	<ul style="list-style-type: none"> • Check for contra-indications (e.g. neutropoenia or thrombocytopenia, rectal surgery, rectal trauma and severe pain). 	<ul style="list-style-type: none"> • To protect from unnecessary harm.
3	<ul style="list-style-type: none"> • Evaluate patient's awareness and understanding of procedure (How, What, Why and Risks). • Provide further information as appropriate before obtaining verbal consent to proceed. • Document consent in case notes. • Refer any refusals to parent consultant. 	<ul style="list-style-type: none"> • To satisfy Trust requirements for obtaining verbal consent and to provide patient with opportunities for questions. • To guarantee that appropriate permission to undertake the procedure is documented if the patient cannot personally give consent at this time
4	<ul style="list-style-type: none"> • Ensure a chaperone is available as appropriate. 	<ul style="list-style-type: none"> • To satisfy local Trust requirements for a chaperone.
5	<ul style="list-style-type: none"> • Measure and record patient's blood pressure and resting pulse at the beginning of the procedure. • If these are not at the patient's baseline, request a medical review. • Monitor patient's condition, observing the patient throughout the procedure as appropriate e.g. flushing 	<ul style="list-style-type: none"> • Some patients, with sensory incomplete SCL may experience vaso-vagal symptoms as a parasympathetic response to ano-rectal distension manifesting itself as a significant bradycardia. • Patients with SCL above T6 are at risk of developing autonomic dysreflexia during DRF, manifesting itself as a significant hypertension (see Section 3 below).

	<ul style="list-style-type: none"> • Offer the patient an opportunity to empty their bladder 	<ul style="list-style-type: none"> • To reduce any discomfort during the procedure and risk of AD
6	<ul style="list-style-type: none"> • Wash and dry hands thoroughly. Apply personal protective equipment as appropriate, to include, as a minimum, disposable apron and two pairs of latex-free examination gloves. • Do not use disposable vinyl examination gloves either as a first or second layer. 	<ul style="list-style-type: none"> • The practitioner is expected to observe universal infection control precautions in relation to use of aprons and gloves throughout the procedure and during the disposal of faeces and soiled items. • Eye protection should be included where appropriate and in accordance with local Trust policy. • The frequency of DRF, involving repeated contact with the rectal mucosa places the SCL patient at high-risk of developing a latex allergy. • Vinyl examination gloves provide insufficient protection against bodily fluids and their raised seams can damage the rectal mucosa.
7	<ul style="list-style-type: none"> • Maintaining privacy and dignity always, place patient in side lying position as appropriate to their comfort, ability or preference. • Position sufficient incontinence pads to protect bedsheets and arrange sheets and curtains to maintain privacy and protect patient dignity. 	<ul style="list-style-type: none"> • The left side lying position makes the rectum more accessible for DRF for right-handed nurses but is not mandatory. • Assume a right side lying position if more convenient or if patient's skin or comfort is compromised. • It is <u>not</u> appropriate for a practitioner to undertake a complete DRF procedure for a patient who is sitting on a toilet / commode due to the risk of postural injury.
8	<ul style="list-style-type: none"> • Using a water-based lubricant, undertake digital rectal examination (see DRE procedure in Section 1 above) to ensure that no new contra-indicative lesions, bleeding or haemorrhoids exist. • Palpate the perianal area starting at 12 o'clock, clockwise to 6 o'clock and then from 12 anti-clockwise to 6. 	<ul style="list-style-type: none"> • The appearance of new and significant ano-rectal lesions or bleeding must be documented and evaluated by a doctor or specialist nurse before continuing. • To check for abnormalities including suspicious swellings rectal prolapse, lesions, bleeding, haemorrhoids, irregularities, swelling, indurations, tenderness or abscess in the area

9	<ul style="list-style-type: none">• Check for the presence of ano-rectal sensation as appropriate - Check sensation with light touch.• If necessary, insert via syringe 11ml of 2% lidocaine (lignocaine) gel (as prescribed) before proceeding further. Wait at least 5 minutes for local	<ul style="list-style-type: none">• To reduce patient discomfort during the procedure and reduce the risk of AD.• The long-term use of lidocaine gel can result in serious health problems. Most SCL patients can tolerate an occasional DRE without recourse to lidocaine. Over time the ano-rectal area
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	<p>anaesthetic to take effect before proceeding further.</p> <ul style="list-style-type: none"> In patients with an established SCL, discuss the procedure with the patient (and check previous care records) in advance, to ascertain preference regarding the use of local anaesthetic gel 	<p>becomes de-sensitised to this procedure sufficient that a patient with a long-established neurological bowel disorder can comfortably tolerate the procedure routinely using only standard water-based lubricating gel</p>
10	<ul style="list-style-type: none"> Ensure that anal sphincter is still in a non-contractile (areflexic/flaccid) state before beginning DRF procedure by gently inserting one gloved and lubricated finger through the sphincter. Note any resistance or reflex contraction of anal sphincter. If contraction of anal sphincter - use Reflex Bowel Management Guideline - section 3. 	<ul style="list-style-type: none"> A positive ano-rectal response to DRE is indicative that patient may now have a Reflex Bowel (Reflex bowel may return once spinal shock has resolved - usually within the first 6 weeks of spinal cord injury) - refer to Reflex Bowel Management Guideline.
11	<ul style="list-style-type: none"> Advise the patient that you are about to begin the procedure. 	<ul style="list-style-type: none"> Communication, keep patient informed
12	<ul style="list-style-type: none"> Remove any faeces present by inserting and gently rotating a single gloved and lubricated finger with finger pad in contact with bowel wall within the rectum. The finger should be crooked slightly away from the bowel wall sufficient to withdraw some of the faeces away in a 'beckoning' action as the finger is drawn backwards and out through the anal sphincter. Lumps of more solid stool should be removed one at a time. 	<ul style="list-style-type: none"> No injury to SCL patients using this procedure as described has ever been reported. Gentle insertion and removal of the finger utilizing appropriate and sufficient lubrication will reduce the potential occurrence of AD. Care must be taken not to damage the rectal mucosa or anus by trying to remove too much stool at a time.
13	<ul style="list-style-type: none"> Use pads only. Explain to patient reason why 	<ul style="list-style-type: none"> Do not use bedpan, patient needs to be on their side throughout the procedure and can sustain spinal injury from being on a bedpan
14	<ul style="list-style-type: none"> Where stool is hard, impacted and difficult to remove other approaches should be employed in combination with digital removal – See Item No. 23 below regarding laxative use. 	<ul style="list-style-type: none"> To maintain patient safety and comfort.
15	<ul style="list-style-type: none"> Carry out abdominal massage – clockwise motion (See Appendix 3) to support the evacuation if required 	<ul style="list-style-type: none"> To initiate Somata Visceral Contraction – similar to peristalsis.

16	<ul style="list-style-type: none"> Observe patient throughout and stop if the patient asks you to do so, if there is anal bleeding, pain persists, the patient complains of headache. 	<ul style="list-style-type: none"> To observe for any changes, direct any remedial action and maintain safety. Autonomic Dysreflexia is a medical emergency, the treatment for which is described in Section 4 below.
17	<ul style="list-style-type: none"> Dispose of faeces into a Clinical Waste bag. Wipe finger of glove clean with a moist disposable wipe between insertions or change top glove as required. Dispose of all soiled materials into Clinical Waste bag. Repeat insertion of 2% Lidocaine (Lignocaine) gel only as necessary 	<ul style="list-style-type: none"> The materials used in the manufacture of modern examination gloves and the lack of powder can make repeated re-gloving within a procedure quite difficult. Choose the most appropriate procedure. To minimise the amount of lidocaine used during the procedure.
18	<ul style="list-style-type: none"> Repeat actions above until the rectum is empty, monitoring patient's condition throughout for signs of apparent discomfort, bleeding, pain, distress, autonomic dysreflexia (hypertension) or parasympathetic over-activity (bradycardia). 	<ul style="list-style-type: none"> Do not attempt to 'hook and drag' faeces as this can damage the bowel wall. If faeces are hard and dry, utilise appropriate suppository or enema as prescribed 30 minutes before commencing procedure. If faeces are too soft to remove effectively, consider leaving patient for another 24 hours to enable further re-absorption of water content. If problem persists, exclude possible infection and review fibre content of diet or feed or prescribe an appropriate bulking agent.
19	<ul style="list-style-type: none"> Check the rectum after 5 minutes Repeat DRF if more stool present 	<ul style="list-style-type: none"> To ensure emptying is complete.
20	<ul style="list-style-type: none"> At the end of the procedure, wash and dry all soiled skin thoroughly and assist patient as required to achieve a comfortable position. 	<ul style="list-style-type: none"> To maintain patient dignity, comfort and skin integrity.
21	<ul style="list-style-type: none"> Check vital signs and patient for any headache or flushing. 	<ul style="list-style-type: none"> Ongoing risk of AD.
22	<ul style="list-style-type: none"> Remove and dispose of apron into clinical waste disposal bag. Wash and dry hands thoroughly 	<ul style="list-style-type: none"> To prevent cross-infection.

23	<p>Additional use of laxatives may be considered where above interventions do not result in daily type 3 or 4 stool:</p> <ul style="list-style-type: none">• 1st line• Microlax Enema.• Oral– Movicol and Senna	<ul style="list-style-type: none">• Local Trust variations may apply. All must be prescribed.• For Reflex Bowel Management it is advisable to aim for soft formed stool that can easily be passed by reflex bowel (Bristol Stool type 4)
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	<ul style="list-style-type: none"> • The below can be added or titrated as necessary • Suppositories – Bisocodyl or Glycerine • Sodium Docusate Enema • Senna 15mg once or twice daily • Macrogol (Movicol), initially one sachet twice a day and titrate as required up to a maximum of 10 sachets per 24 hours • Sodium docusate 200mg twice daily • 1-2 Microlax enemas • AVOID large volume enemas, phosphate, sodium picosulfate and neostigmine unless senior medical input – use micro enemas • Ensure all medications prescribed are reviewed in relation to constipation. 	<ul style="list-style-type: none"> • For Areflex (Flaccid) Bowel Management it is advisable to aim for a slightly firmer stool that can easily be removed by manual evacuation (Bristol Stool type 3)
24	<ul style="list-style-type: none"> • Document result in case notes with reference to Bristol Stool Chart as appropriate. Report any exceptions to the guidelines which occurred during the procedure. • Document date and time of procedure; consent, irregularities around anus and perianal area; findings from palpation; presence of any blood; name, job title and signature • DRE should be performed a minimum of daily as a default to assess for faeces in the rectum and repeat DRF if indicated. 	<ul style="list-style-type: none"> • To enable consistent reporting and interpretation of results and to monitor the effects of any legitimate interventions or changes to previously established bowel management programme. • To reduce the risk of autonomic dysreflexia associated with constipation.

3. EMSN PROCEDURAL PATHWAY FOR THE DIGITAL RECTAL STIMULATION (DRS) IN INPATIENTS WITH NEW AND ESTABLISHED SPINAL CORD LESIONS (SCL)

REFLEX BOWEL MANAGEMENT

Materials required for standard procedure:

- Latex-free examination gloves
- Disposable incontinence sheets
- Lubricating gel
- Chaperone
- Disposable cleaning wipes
- Skin cleansing materials
- Clinical waste disposal bag

	Action	Rationale
1	<ul style="list-style-type: none"> • Confirm that you are assessed as competent in your ability to undertake this procedure safely. • Confirm continued appropriateness of procedure for patient in accordance with patient's notes and current nursing care plan. 	<ul style="list-style-type: none"> • To satisfy clinical governance requirements for maintaining patient safety prior to an invasive procedure.
2	<ul style="list-style-type: none"> • Check for contra-indications (e.g. neutropoenia or thrombocytopenia, rectal surgery, rectal trauma and severe pain). 	<ul style="list-style-type: none"> • To protect from unnecessary harm.
3	<ul style="list-style-type: none"> • Evaluate patient's awareness and understanding of procedure (How, What, Why and Risks). • Provide further information as appropriate before obtaining verbal consent to proceed. • Document consent in case notes. • Refer any refusals to parent consultant. 	<ul style="list-style-type: none"> • To satisfy Trust requirements for obtaining verbal consent and to provide patient with opportunities for questions. • To guarantee that appropriate permission to undertake the procedure is documented if the patient cannot personally give consent at this time

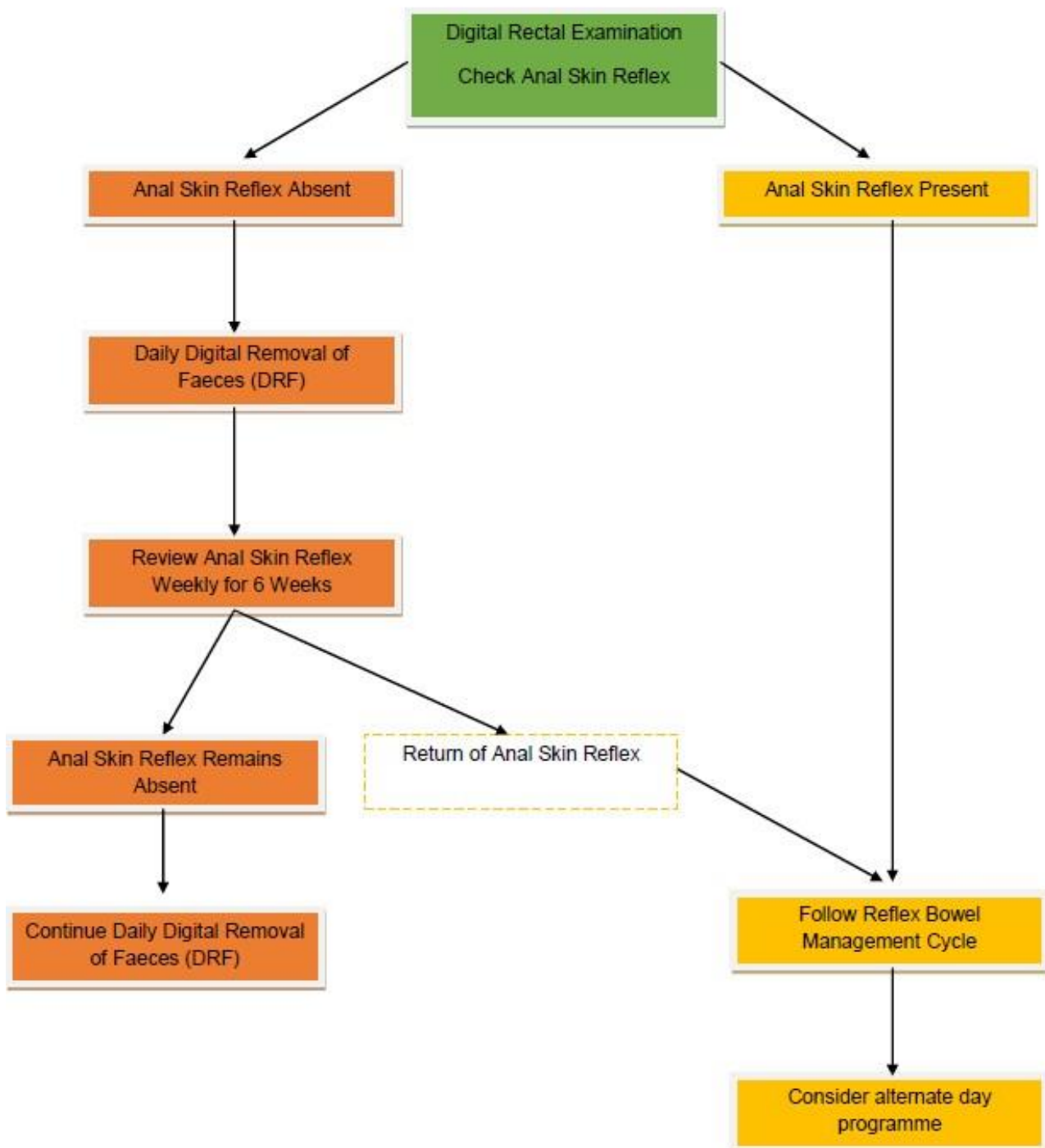
4	<ul style="list-style-type: none">• Ensure a chaperone is available as appropriate.	<ul style="list-style-type: none">• To satisfy local Trust requirements for a chaperone.
5	<ul style="list-style-type: none">• Measure and record patient's blood pressure and resting pulse at the beginning of the procedure.• If these are not at the patient's baseline, request a medical review.	<ul style="list-style-type: none">• Some patients, with sensory incomplete SCL may experience vaso-vagal symptoms as a parasympathetic response to ano-rectal distension manifesting itself as a significant bradycardia.

	<ul style="list-style-type: none"> • Monitor patient's condition, observing the patient throughout the procedure as appropriate e.g. flushing • Offer the patient an opportunity to empty their bladder 	<ul style="list-style-type: none"> • Patients with SCL above T6 are at risk of developing autonomic dysreflexia (AD) during DRS, manifesting itself as a significant hypertension (see Section 4 below). • To reduce any discomfort during the procedure and risk of AD
6	<ul style="list-style-type: none"> • Wash and dry hands thoroughly. Apply personal protective equipment as appropriate, to include, as a minimum, disposable apron and two pairs of latex-free examination gloves. • Do not use disposable vinyl examination gloves either as a first or second layer. 	<ul style="list-style-type: none"> • The practitioner is expected to observe universal infection control precautions in relation to use of aprons and gloves throughout the procedure and during the disposal of faeces and soiled items. • Eye protection should be included where appropriate and in accordance with local Trust policy. • The frequency of DRS, involving repeated contact with the rectal mucosa places the SCL patient at high-risk of developing a latex allergy. • Vinyl examination gloves provide insufficient protection against bodily fluids and their raised seams can damage the rectal mucosa.
7	<ul style="list-style-type: none"> • Maintaining privacy and dignity always, place patient in side lying position as appropriate to their comfort, ability or preference. • Position sufficient incontinence pads to protect bedsheets and arrange sheets and curtains to maintain privacy and protect patient dignity. 	<ul style="list-style-type: none"> • The left side lying position makes the rectum more accessible for DRF for right-handed nurses but is not mandatory. • Assume a right side lying position if more convenient or if patient's skin or comfort is compromised. • It is <u>not</u> appropriate for a practitioner to undertake a complete DRF procedure for a patient who is sitting on a toilet / commode due to the risk of postural injury.
8	<ul style="list-style-type: none"> • Using a water-based lubricant, undertake digital rectal examination (see DRE procedure in Section 1 above) to ensure that no new contra-indicative lesions, bleeding or haemorrhoids exist. Palpate the perianal area starting at 12 o'clock, clockwise to 6 o'clock and then from 12 anti-clockwise to 6. • Review if any stool is present. If stool is found remove using DRF procedure as described in Section 2. 	<ul style="list-style-type: none"> • The appearance of new and significant ano-rectal lesions or bleeding must be documented and evaluated by a doctor or specialist nurse before continuing. • To check for abnormalities including suspicious swellings rectal prolapse, lesions, bleeding, haemorrhoids, irregularities, swelling, indurations, tenderness or abscess in the area • You cannot insert Rectal Stimulant or carry out effective DRS if stool in rectum.
9	<ul style="list-style-type: none"> • Insert Rectal Stimulant (Enema or Suppositories as Prescribed) (See prescribing guidelines - see 10) 	<ul style="list-style-type: none"> • To stimulate peristalsis and movement of stool into rectum.

	<ul style="list-style-type: none"> In patients with an established SCL, discuss the procedure with the patient (and check previous care records) in advance, to ascertain preference of Enema or Suppositories. 	
10	<p>Additional use of laxatives may be considered where above interventions do not result in daily type 4 stool:</p> <ul style="list-style-type: none"> 1st line Microlax Enema. Oral– Movicol and Senna The below can be added or titrated as necessary Suppositories – Bisocodyl or Glycerine Sodium Docusate Enema Senna 15mg once or twice daily Macrogol (Movicol), initially one sachet twice a day and titrate as required up to a maximum of 10 sachets per 24 hours Sodium docusate 200mg twice daily 1-2 Microlax enemas AVOID large volume enemas, phosphate, sodium picosulphate and neostigmine unless senior medical input – use micro enemas Ensure all medications prescribed are reviewed in relation to constipation. 	<ul style="list-style-type: none"> Local Trust variations may apply. All must be prescribed. Microlax enemas are used as a rectal stimulant to aid peristalsis and stool movement. For Reflex Bowel Management it is advisable to aim for soft formed stool that can easily be passed by reflex bowel (Bristol Stool type 4)
11	<ul style="list-style-type: none"> Wait for result of enema. Repeat DRE - if faeces are now present in the rectum perform Digital Rectal Stimulation. (see 12) If faeces are not present - bowel care regime is complete. 	
12	<ul style="list-style-type: none"> Insert gloved, lubricated finger into the rectum and turn the finger so that the pad of the finger is in contact with the bowel wall. 	

	<ul style="list-style-type: none"> • Rotate the finger for at least 10 seconds and up to 5 minutes, maintaining contact with the bowel wall throughout. • Withdraw the finger and await reflex bowel opening (This may take 5-10 minutes). • Perform DRE - if faeces present repeat DRS • If no faeces present, then bowel care regime is complete • This can be repeated up to three times a day if bowels do not open. 	<ul style="list-style-type: none"> • This stimulates peristalsis and the movement of stool from the bowel to the rectum. • To check if stool has been moved into rectum.
13	<ul style="list-style-type: none"> • At the end of the procedure, wash and dry all soiled skin thoroughly and assist patient as required to achieve a comfortable position. 	<ul style="list-style-type: none"> • To maintain patient dignity, comfort and skin integrity.
14	<ul style="list-style-type: none"> • Check vital signs and patient for any headache or flushing. 	<ul style="list-style-type: none"> • Ongoing risk of AD.
15	<ul style="list-style-type: none"> • Remove and dispose of apron into clinical waste disposal bag. Wash and dry hands thoroughly. 	<ul style="list-style-type: none"> • To prevent cross-infection.
16	<ul style="list-style-type: none"> • Document result in case notes with reference to Bristol Stool Chart as appropriate. Report any exceptions to the guidelines which occurred during the procedure. • Document date and time of procedure; consent, irregularities around anus and perianal area; findings from palpation; presence of any blood; name, job title and signature 	<ul style="list-style-type: none"> • To enable consistent reporting and interpretation of results and to monitor the effects of any legitimate interventions or changes to previously established bowel management programme.

Acute Spinal Cord Injury: Bowel Management Decision-Making



GENITO-URINARY SYSTEM

Catheterisation / urine output

In spinal cord injury, the accompanying spinal shock causes paralysis of the detrusor muscle of the bladder leading to retention of urine.

- The SCI patient requires catheterisation to prevent bladder distension, otherwise damage may occur to the bladder sphincter with subsequent problems in long-term bladder management and rehabilitation. Silicone catheters, larger than the standard trust recommendations are preferred, to reduce the risk of encrustation and infection as the paralysed bladder produces more mucous and debris, size 16 is recommended.
- Strict aseptic technique should be used for the initial catheterisation and for subsequent changes every 4 weeks, as in the SCI patient the immune system is depressed and thus the risk of developing infection increased.
- A catheter is necessary to monitor accurate urine output and thus renal function. Hypotension that accompanies spinal shock causes an increase in production of anti-diuretic hormone (ADH), which subsequently reduces urine output. Urine output is therefore an indicator of renal perfusion and thus cardiovascular status.
- Bladder washouts should not be used routinely as they may over distend the bladder wall. They may in extreme cases worsen bladder obstruction and lead to Autonomic Dysreflexia (see separate section)
- Fluids, whether intravenous or oral will help to 'flush' the kidneys, help prevent the build up of sediment and reduce the potential for catheter blockage.
- Regular changes of position also help reduce sedimentation by mobilising the bladder contents.

Discuss starting bladder training using a 'flip flo catheter valve' – refer to SCI CENTRE

- As previously stated, bed pans, of any variety should not be used for patients with any level of spinal column or cord injury due to the risk of altering spinal alignment and extending the level of injury.
- Male and female urinals are available for those patients with isolated column injuries who do not require catheterisation.

Possible exceptions to this rule are patients with 'stable' injuries or those who have had a significant period of bed rest or certain operative management. This should be a consultant decision and documented in the notes accordingly.

Autonomic Dysreflexia

Autonomic dysreflexia is a condition that emerges after spinal cord injury (SCI), usually when the damage has occurred at or above the level of T6. The higher the level of SCI and the more complete, the greater the risk of developing AD, with up to 90% of patients with cervical or high thoracic SCI being susceptible. Autonomic dysreflexia is the product of dysregulation of the autonomic system, leading to an uncoordinated response to a noxious stimulus below the level of a spinal cord injury resulting in a potentially life threatening hypertensive episode. The combination of dangerously high blood pressure and cerebral vasodilation puts the patient at high risk of a hemorrhagic stroke an increase of 300% to 400%, an increase in mortality rate of 22%, organ damage (heart attack, heart failure, kidney failure) and seizures. AD is significant because it is a potentially lethal disorder that occurs in about half or more of the potentially susceptible individuals but can usually be easily alleviated by prompt recognition and relatively simple corrective procedures by healthcare professionals responsible for caring for these group of patients.

Signs and Symptoms of Autonomic Dysreflexia:

Above the level of the lesion	Below the level of the lesion	Additional
Headache Pounding, usually frontal (almost always present)	Raised Blood Pressure [BP] (20-40mmHg above baseline)	Respiratory distress and/or bronchospasm/tight chest/shortness of breath
Bradycardia (or tachycardia) and arrhythmias	Pallor or goose-bumps	Feeling of panic or anxiety (feelings of doom)
Diaphoresis (profuse sweating above the level of the injury)	Cool skin	Metallic taste in the mouth
Blotched/flushed skin above the level of the lesion	Piloerection	Signs of stroke or seizure (i.e. affected speech, facial expression, tremors, twitching)
Blurred vision		Altered level of consciousness or behavioural changes.
Nasal congestion		Nausea and vomiting
		Dizziness

Common causes of Autonomic Dysreflexia

Cause	Explanation
Urinary	Distended bladder or kinked/blocked catheter, UTI, renal calculi
Bowels/GI tract	Impacted bowels, constipation, distended abdomen, haemorrhoids, fissure
Integument/Skin	Burns / scalds to skin, pressure sores, in-growing toenails, tight clothing, sunburn, frostbite, bed creases or foreign object bed, blisters, boils.
MSK	Fracture, heterotopic ossification, dislocation
Haematological	DVT/PE
CNS	Syringomyelia
Reproductive female	Sexual intercourse, pregnancy, labour / delivery, menstruation, vaginitis
Reproductive male	Erection, ejaculation, epididymitis, scrotal compression, testicular torsion
Medications	Nasal decongestants, misoprostol, sympathomimetics, stimulants.
Organs	Pancreatitis, Cholecystitis, gastric ulcers

EMSN AUTONOMIC DYSREFLEXIA (AD) PATHWAY

	Action	Rationale
Prevention and preparation		
1	Evaluation, history of previous episodes of AD, precipitating	Awareness of triggers the prevent/reduce the risk of AD

	events and usual remedy (check with patient)	episodes
2	Measure and record baseline blood pressure, pulse and vital signs for all Spinal Cord Injured Patients	To aid early detection of developing signs and symptoms and diagnosis of AD
3	Identify patients at risk (SCI at or above the T6 level)	90% of patients with cervical or high thoracic SCI being susceptible
4	Familiarise yourself with the signs and symptoms of AD	To aid early diagnosis
5	<p>Patients with SCI</p> <ul style="list-style-type: none"> • If patient has established SCI – maintain the patient’s normal bowel care routine. • If patient has new SCI - monitor bowels carefully to prevent constipation. • Monitor urinary catheter output regularly. • Manage other potential causes of AD. 	To reduce risk of AD
First Line Treatment		
6	<p>Treat the patient with any of the symptoms of AD</p> <ul style="list-style-type: none"> • Call for help • Sit patient up and lower legs (if safe to do so and spinal condition allows), • Loosen/remove tight clothing or constrictive devices 	AD is a medical emergency and needs to be addressed immediately.
	<ul style="list-style-type: none"> • Check manual BP (> than 25-40 mmHg above baseline could be AD). • Check every 5 minutes • Check manual pulse (reduction in pulse rate could be AD) • Monitor vital signs • Check for possible cause of AD (see 6) • Ensure appropriate antih 	<p>This will help lower their blood pressure orthostatically by inducing the pooling of blood in the abdominal and lower extremity vessels as well as eliminating possible triggering stimuli.</p> <p>Manual BP check with a sphygmomanometer is required in medical emergencies where patient is bradycardic or tachycardic as automated BP monitors may not be accurate with very fast or irregular heart rates.</p> <p>The noxious stimuli should be corrected as soon as possible</p>

	<p>ypertensiverescue medicationis available in the clinical area and prescribed on admission as a PRN.</p>	<p>Rescue medication should be prescribed.</p>
7	<p>Take urgent steps to reduce hypertension</p> <ul style="list-style-type: none"> • If Systolic Blood Pressure (SBP) >150mmHg, (or patient feels symptoms of AD and requests treatment) Monitor BP every 2-5 for 10 minutes, if the BP does not return to baseline within 10 minutes using measures to eliminate/treat the cause (as shown above in 5) or if the systolic BP remains above 150mmHg, begin medical treatment immediately with appropriate anti-hypertensives as prescribed.² • Medication <ul style="list-style-type: none"> o Glyceryl Trinitrate [GTN] (2 sprays sublingual) o GTN patches o or 25mg Captopril sublingual • Give analgesia as prescribed 	<p>Actions are aimed at reducing blood pressure and reduce the risk of complications of high blood pressure (e.g. intracranial bleed).</p> <p>Rescue medication may vary according to local availability and clinician preference.</p> <p>GTN patches may provide an alternative route of administration.</p> <p>To monitor effects of treatment administered and to ensure no rebound hypotension.</p>
	<ul style="list-style-type: none"> • Monitor BP every 15 minutes for at least 2 hours until patient returns to being normotensive. 	
7	<p>Identify/eliminate and treat the underlying cause</p> <ul style="list-style-type: none"> • A-E assessment • Urgent escalation to medic and/or CCOT/DART team. • Check catheter is 	<p>To remove noxious stimulus and resolve AD</p> <p>If BP remains poorly controlled despite measures above to prevent end organ damage and for appropriate medications.</p> <p>Blocked catheter/bladder distention is responsible for about 85% of all cases and is by far the most common trigger</p>

	<p>patent (obstruction/malfunction, kinks, malpositioning, perform work up for UTI. Do not flush catheter</p> <ul style="list-style-type: none"> • Re-catheterise / catheterise using lidocaine as a lubricant – empty catheter bag and remove any potential blockages – ideally large lumen catheter (16Fr or above) • DRE +/- DRF as per EMSN pathway • Head to toe assessment to look for other causes (refer to causes of AD). • Inform specialist nurse and parent consultant • Document in nursing notes 	<p>followed by fecal impaction/constipation. Rule these out first.</p> <p>Do not flush catheter due to risk of neurogenic bladder and risk of perforation and infection.</p>
	<p>Take urgent steps to reduce hypertension</p> <ul style="list-style-type: none"> • If Systolic Blood Pressure (SBP) >150mmHg, or less than 40mmHg above the patient's usual baseline (or patient feels symptoms of AD and requests treatment). Monitor BP every 2-5 for 10 minutes, if the BP does not return to baseline within 10 minutes using measures to eliminate/treat the cause (as shown above in 5) or if the systolic BP remains above 150mmHg, begin medical treatment immediately with appropriate anti-hypertensives as prescribed.³ 	<p>If the triggering event cannot be identified and initial maneuvers do not improve systolic BP emergency antihypertensive pharmacological management should be initiated.</p> <p>Actions are aimed at reducing blood pressure and reduce the risk of complications of high blood pressure (e.g. intracranial bleed).</p>

	<ul style="list-style-type: none"> • Medication • Glyceryl Trinitrate [GTN] (2 sprays sublingual) • GTN patches 	
	<ul style="list-style-type: none"> • or 25mg Captopril sublingual • Give analgesia as prescribed <p>Monitor BP every 15 minutes for at least 2 hours until patient returns to being normotensive.</p>	<p>Rescue medication may vary according to local availability and clinician preference.</p> <p>GTN patches may provide an alternative route of administration.</p> <p>To monitor effects of treatment administered and to ensure no rebound hypotension.</p>

Prevention of Future Episodes.

8	<p>Prevention of future episodes of AD</p> <ul style="list-style-type: none"> • Ensure structured education plan for patient and carers has been initiated • Appropriate bladder and bowel care regimen established • Appropriate Pressure Ulcer Prevention care (SKINN bundles) • Check bed or chair regularly for foreign objects. • Appropriate analgesia • Record triggers • Referral for specialist review • Provide patient with AD alert card and patient information on AD • Susceptible patients should carry an emergency treatment kit bag with necessary supplies and an alert card with information and instructions of AD 	<p>Prophylaxis and optimal management of patients at risk of AD will reduce the risk of recurrence and educate patient accordingly to maintain ongoing safety Awareness of triggers to reduce risk of further episodes. If patient experiences recurrent episodes of AD for investigations and provision of ongoing support.</p> <p>Increase awareness of patient partners, carers, public and other healthcare professionals the actions to take in the event of AD.</p> <p>Refer to EMSN Neurogenic Bowel Care Guideline. Refer to EMSN Neurogenic Bladder Care Guidelines EMSN AD alert card</p> <p>SIA/MASCIP patient information leaflets Refer to EMSN Bowel Care Guideline.</p> <p>Local pressure care policies and procedures</p> <p>Any healthcare professional/person unfamiliar with this condition in the event of an emergency will be able to</p>
		<p>assist and help reduce the risk of the complications associated with AD</p>

MUSCULO- SKELETAL SYSTEM

PAIN MANAGEMENT

Assessment

□ Pain assessment should be started on admission to provide a baseline for future comparison. The patient should have their pain score assessed and documented at least hourly for the first 4 hours and then reduced as appropriate and amended on the care plan.

Analgesia

The use of opiates for pain relief may be restricted in cervical or upper thoracic injuries due to the risk of respiratory depression. Spinal cord swelling reaches a peak within about 72 hours, therefore the potential for an increasing level of lesion is the same. If respiratory depression develops, it is difficult to assess whether this is due to the effects of oedema or the opiates and can delay appropriate treatment. The use of opiates should depend on the level of monitoring available for the patient (ward or HDU / ICU), the presence of other injuries and past / current medical history.

□ The effects of any analgesia should be monitored on the pain chart and reviewed accordingly. A referral to the Acute Pain Team or SCI CENTRE may be necessary if the prescribed analgesia is not effective.

Positioning / support

Positioning of limbs in correct alignment, supported with pillows can also help to reduce pain. As previously mentioned, a neck roll placed in the natural cervical curve helps to support the cervical region and thus help reduce pain at the fracture site.

Hypersensitivity / phantom pain / proprioception

There may be an assumption that paralysed patients do not have any pain, however the opposite may be true. Patients with spinal cord injury may have severe pain just above the level of injury, known as hypersensitivity.

It is also not uncommon for patients to have a type of phantom pain. This may be related to the position they were in at the time of injury. For example a patient who was driving a car may feel that his hands are still holding the steering wheel, as this is the position he was found at the accident and this is what the brain remembers prior to the injury. This can be quite distressing for the patient and can also become a source of pain and spasm..

Referred pain

However, a SCI patient may not feel pain from another injury source, e.g. other fractures or abdominal injuries. The patient may have 'referred' pain in the shoulder from an acute abdominal problem, although shoulder pain is common in high-level injuries and is generally relieved by passive exercises.

□ In terms of other injuries, staff need to be particularly vigilant for signs of complications, as the patient cannot necessarily notice the usual symptoms. An example is compartment

syndrome following a fractured tibia which is usually indicated by pain and reduced / altered sensation, neither of which the SCI patient may be able to report.

Spasm

Spasm is another potential source of pain. It tends to be more marked in patients with incomplete lesions. Triggers may be simple such as a sudden noise, sudden change in temperature as when bedclothes are removed, being touched by cold hands or specific limb positions.

- Any spasm triggers should be documented, care plan amended accordingly and communicated to the rest of the care team to try and reduce the incidence of spasm.
- Passive exercises and stretching, turning and limb re-positioning can help to reduce painful spasm.
- Anti-spasmodic agents should not be used routinely, refer to the SCI CENTRE for advice.
- Patients and relatives may confuse spasm with the return of limb function. In these instances staff should explain that spasm is part of the body's normal protective response and should not give false hope regarding return of function. Staff may wish to refer to their keyworker or SCI CENTRE for advice at this stage.

RISK OF DEEP VEIN THROMBOSIS / PULMONARY EMBOLISM

The muscle paralysis following spinal cord injury results in poor venous return and thus venous pooling in the limbs. This increases the risk of deep vein thrombosis.

Observation

- Daily observation of each calf for redness, heat or swelling is recommended. However deep vein thrombosis is not always easy to detect, as swelling may only be apparent about 10 days after formation of the clot. A sudden, unexpected pyrexia may be the only reliable early indicator. (see 'Temperature')

Anticoagulation

- Anticoagulation, may be delayed in the presence of a cord haematoma or if surgery is indicated. Otherwise LMWH, should be started once a diagnosis has been made, usually about 24 hours post injury. This should be dependent on written instructions from the consultant.

Anti-embolic stockings / foot pumps

- Correctly measured anti-embolic stockings should be applied on admission to counteract the effects of venous pooling and immobility. Stockings should be re-measured at 72 hours and then weekly, due to the potential for significant muscle wasting.
- Foot pumps are recommended where available, being effective for improving circulation and reducing stasis. These can be placed over the anti embolic stockings. The boots should

be removed every 2 hours and the skin checked for signs of pressure / breakdown. (see foot drop splints)

Physiotherapy

□ A programme of passive movements should be incorporated into the patient's care plan, to be carried out by the physiotherapists, or by nurses and relatives under direct instruction of the therapist first. These should be carried out at least 2 hourly during the day, and preferably continued 2 – 4 hourly during the night. Passive exercises, whilst helping to promote venous return and reduce muscle wasting, also provide another source of stimulus and communication for the patient.

Limb positioning

□ Care should be taken during any repositioning, that limbs are supported correctly at the joints to reduce risk of friction / shearing or joint damage. Patients are at particular risk of hyperextension of the knee if the leg is not supported under the knee and ankle whilst being lifted.

□ Pillows should be repositioned during turns to ensure the limb is supported adequately, ensuring that creases are removed to reduce a potential pressure risk.

□ Foot blocks and pillows should be used to support the feet and reduce the potential for foot drop, whilst ensuring the heels are free from pressure.

□ Foot drop splints may be recommended to maintain the alignment and range of joints. They need to be removed every 2 hours, if any signs of pressure evident they should be left off and the care plan reviewed. (If alternated with the AV boot this complies with the local T&O standard of the maximum time the AV boot can be left off.)

Additional supports

These need to be discussed with the patient's consultant prior to use.

□ Depending on the level of injury and subsequent treatment, the patient may require the additional support of an individually made neck roll between the collar and the bed to support the natural cervical lordosis and aid patient comfort. A lumbar pillow may be of use for the same reason for lumbar fractures.

OTHER MUSCULO-SKELETAL COMPLICATIONS

Muscle wastage

Bedrest and immobility causes the loss of muscle bulk by up to 30% in 7 days.

□ Dietary intake needs to be planned with the patient and dietician to ensure the appropriate amount of calories, proteins etc (see GI system)

Risk of fractures

Bedrest and immobility lead to a loss of bone density, with a potential for osteoporosis and increased risk of fractures, particularly in the lower limbs.

Flaccid limbs therefore require support when the patient is re-positioned in bed or transferred to another surface, to prevent them falling off the bed or getting trapped in cot sides.

Consider pharmacological treatment in consultation with the SCI CENTRE.

Joint contractures

Contractures can develop within a few hours following spinal cord injury.

With injuries of C7 and above there is a high risk of biceps contracture due to a lack of opposing triceps muscle. In terms of rehabilitation this can mean the difference between the patient being able to feed himself or not.

A plan of passive exercises should be devised on admission, and agreement obtained from the consultant in terms of the range of movements allowed.

Where possible exercises should be performed with the patient supine and the injury site supported by another member of staff, to reduce the risk of altered spinal alignment.

Cervical spine injury - generally shoulder abduction is restricted to 90 degrees, movement beyond this can be relayed to the cervical region potentially causing pain or even secondary trauma to the spinal cord.

Thoracolumbar injuries – generally hip flexion is restricted to 40 degrees for the reasons stated above.

Exercises should be carried out at least 2 hourly during the day and preferably continued during the night. However certain exercises may need to be carried out more frequently, e.g. passive elbow extension.

Relatives may be taught specific exercises or re-positioning, for example - wrist and finger exercises to maintain 'functional position' and passive elbow extension as above.

Staff should be aware of the potential manual handling risk when carrying out passive exercises. Paralysed limbs are very heavy and staff should maintain the principles of manual handling during these movements.

Refer to www.mascip.co.uk 'guidelines' and 'SIA Moving and Handling Guidelines' for posters regarding positioning of the patient.

PSYCHOLOGICAL SUPPORT

Spinal cord injury is usually sudden and unexpected. Loss of movement and / or sensation may or may not be permanent and a definite diagnosis may be delayed due to the presence of spinal shock and cord swelling. Patients and relatives are anxious and uncertain about the

future and need to develop confidence in the care team, both in terms of physical and psychological care. Staff should have a confident and competent approach to physical aspects of care and also provide a consistent delivery of information, within the limitations of knowledge and experience. Where further information or support is required, the spinal keyworkers or local SCI CENTRE can be contacted for advice. Another recommended source of information is www.sia.co.uk

SENSORY DEPRIVATION

Sensory deprivation can lead to problems such as disorientation, visual disturbances, hallucinations or an inability to cope with the daily occurrences and noises in the immediate environment. It is particularly related to the loss of touch and positional awareness in the paralysed parts of the body. In some instances the brain may remember the position the patient was in at the time of the accident, which may be lying twisted at the bottom of the stairs, or driving a car. The patient then may feel that they are still in this position and may ask staff constantly for example to uncross their legs or put their legs back on the bed. This can be very distressing for the patient and may last a number of weeks. It is important that patients are encouraged to look at their paralysed limbs, using mirrors, and also for staff to explain where limbs are being positioned during turning / repositioning.

Regular turning and passive exercises provides contact for the patient and can help reduce the effects of sensory deprivation. Staff should also ensure that if they touch the patient to provide psychological support it is an area that the patient can feel such as the face.

Documentation Controls

Development of Guideline:	Trauma Nurse and Spinal Injuries Management Working Group.
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