Acute Spinal Cord Injury Checklist

This document is a guide to acute spinal care. Prioritisation of needs should be done on an individual basis according to clinical need. This checklist should be used in conjunction with the full guideline, Managing Patients with a Spinal Cord Injury.

Patient Name:

Hospital Number:

Action and Timeframe	Information and Resources	Initial and date when completed
Add patient onto spinal register All patients admitted to acute hospitals in England who are identified as having as spinal cord injury, traumatic or non-traumatic, must be referred to the link spinal cord injury centre with 24 hours using the electronic referral system.	http://nww.spinalreferrals.nhs.uk/ to register patient and trigger referral to Outreach. **Stanmore:** Spinal Outreach: 02089095121 Switchboard: 0208 9542300 **Stoke Mandeville Spinal Cord Injuries Team:** 01296 315000	PT/Dr

Initial Assessment and Diagnosis	Patients admitted to the ED with polytrauma with spinal injury or spinal cord injury should follow the South West London & Surrey Trauma Network Spinal Injury Pathway. Specialist Spinal Surgeon who has accepted the patient should liaise with Stanmore to establish a partnership of care The initial assessment and care of all traumatic spinal cord injury patients should follow the guidelines set out in NICE guidance NG41 and BOAST Guidelines For Cauda Equina Injury refer to Getting It Right First Time (GIRFT) National Suspected Cauda Equina Pathway. ISNCSCI (ASIA) chart should be completed within 48 hours of diagnosis, following any surgical intervention, at 6 weeks of any change in circumstances.	PT/Dr
Check Spinal Stability and Restrictions Day of referral	Ensure all medical guidance for collars, braces and spinal restrictions including mobility are clearly documented by the medical team. Spinal bracing and stability form should be used and can be found by entering FHFT BRACING GREEN FORM SPINAL into smart text box in EPIC For pictorial and detailed advice on moving and handling in SCI see Moving & Handling Patients with actual or suspected spinal cord injuries (SCI), MASCIP, 2015	All
Refer to MDT Referral to appropriate disciplines should be actioned as soon as is practicable	Refer to MDT via EPIC: Physiotherapy Team Occupational Therapy Team Speech and Language Therapy Team Dietetic Team Psychology team as required	All

<table>
<tr><td></td><td>Referral to Acute Oncology Team should be made if there is a suspicion of metastatic disease causing spinal cord compression.</td><td></td></tr>
<tr><td>Respiratory Assessment and management plan
Within 48 hours of admission</td><td>Assessment:

Baseline Spirometry including Forced Vital Capacity (FVC) and Peak Cough Flow (PCF) should be completed within 48 hours of admission for all SCI L1 and above who are self ventilating.

<table><tr><th>FVC</th><th>Action</th><th>PCF</th><th>Action</th></tr><tr><td><1.0l</td><td>Critical Care Team/Rapid Response Team should be notified</td><td><270</td><td>Referral to physiotherapy within 24 hours</td></tr><tr><td><2.5l</td><td>Referral to Physiotherapy within 24 hours</td><td></td><td></td></tr></table>
Physiotherapy team should implement a management plan for secretions, volume improvement and cough augmentation within 24 hours of referral

FVC and PCF should be continued as indicated and completed once weekly whilst an inpatient or until otherwise advised by the spinal injuries centre.</td><td>PT</td></tr>
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Management:

FVC	Risk	Action	PCF	Risk	Action
<1.0l	Respiratory Failure	Close Monitoring Refer to rapid response team/critical care for consideration of ventilatory support	**<270l/min**	Inability to effectively clear sputum	Cough augmentation plan may include: Intermittent positive pressure Manual insufflation / exsufflation (cough assist) Manual assisted cough
<2.5l	Atelectasis Sputum Plugging Weak cough	Prophylactic respiratory management may include: Intermittent positive pressure Manual insufflation / exsufflation (cough assist) Manual assisted cough	**<160l/min**	Inability to clear sputum without augmentation	Cough augmentation plan: Manual insufflation / exsufflation (cough assist) AND Manual assisted cough

NEVER position a patient with SCI in the sitting position when in respiratory distress. Lying flat will assist respiratory function and decrease work of breathing.

When appropriate to start sitting the patient, FVC should be reviewed in both sitting and lying and abdominal binders should be considered to optimise FVC in sitting.

Contacts:
Advanced Physiotherapy Practitioner in Critical Care: Georgina Linstead 07557 203776
Outreach Team FPH: 07768 131445
Outreach Team WPH: 07909 930278

Cardiovascular Management As required	**DVT** Prophylaxis is mandatory with physical plus Low molecular weight Heparin (LMWH) which should start as soon as possible and before day 3 post injury unless the patient has other injuries that make it contraindicated. **Hypotension** (be aware of your patients baseline BP) Management of hypotension in SCI: Nurse patient supine Monitor BP Maintain mean arterial pressure > 85mmHg Maintain urine output of ³ 30mls/hour Administer IV fluids Inotropes may be required. Ephedrine or Midodrine may be required **Bradycardia** Management of bradycardia in SCI: HR < 40bpm administer Atropine 0.3-0.6mg as IV bolus if patient is cardio-vascularly unwell or unstable **Postural Hypotension** Management of postural hypotension in SCI: An abdominal binder and long compression stockings may help to prevent postural hypotension on sitting up or mobilising.	DR
Pressure Care Considerations On initial assessment	An assessment tool for pressure ulcer risk (such as the Waterlow Score or Purpose T) should be completed and documented within 6 hours of admission and weekly thereafter Continence routine should be established and maintained as quickly as possible **Bed** Documented positioning programme should be in place within 72 hours of admission and prior to this patient should be repositioned every 2 hours.	PT/OT/NS

	After every manoeuvre, the patient's position and alignment should be checked, and the skin loading adjusted as required **Wheelchair** When using a wheelchair, an appropriate pressure relieveing cushion should be used Patient should not sit out for > 1 hour without pressure relief, pressure relief should be completed for 2 consecutive minutes every hour. Strict graded seating plan should be utilised (see full guideline) **Signs of pressure or moisture lesions** Patients with a pressure sore should be following a strict positioning/ turning plan avoiding any pressure on the area affected and NOT sitting out of bed until the sore is fully healed. Following a pressure sore a strict regime for mobilisation should be follwed (see full guideline) **Education** Patients should be provided education as early as is possible on the avoidance and initial management of pressure ulcers with an emphasis on making this information applicable to their daily life	
Bladder and Bowel considerations Within 24 hours of initial assessment	**Bladder** All patients with a SCI should have a urology referral and this should include consideration of Cystoscopy and KUB. The method of bladder management should be agreed with your local urology team and further advice can be sought from LSCIC, Stanmore Local procedure for use of indwelling catheters should be adhered to Indwelling catheters should be changed every 4-6 weeks for this patient group due to the risk of build up of sediments. Referral should be made to urology team for consideration of suprapubic catheter **Bowel** Use the Guidelines for the Management of Neurogenic Bowel dysfunction in Individuals with Central Neurological Conditions	All

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<td>A comprehensive assessment of bowels should be completed at the onset of injury to determine whether the patient has a reflexic or areflexic (flaccid) bowel and the reflex should be assessed regularly until spinal shock has resolved
A patient who is experiencing constipation, diarrhoea, impaction, anal fissures, haemorrhoids or autonomic dysreflexia requires a review of their bowel regime.

Practicalities
Positioning and seating timetables should be established around bladder and bowel care timings
Therapy sessions should be planned around bladder and bowel care timings

For specialist advice contact Stanmore outreach nurse: 02089095121</td>
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<td>Autonomic Dysreflexia</td>
<td>More prevalent as the patient comes out of neurogenic/spinal shock, often sub-acute phase
AD is a clinical emergency in individuals with SCI.
It commonly occurs in individuals with injury at level T6 and above
A BP greater than 20-25mmHg above patients baseline should be considered as AD and treated appropriately

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<tr><th>Signs and symptoms of AD</th></tr>
<tr><td>Raised BP</td></tr>
<tr><td>Bradycardia or Tachycardia (Bradycardia at onset, tachycardia may follow)</td></tr>
<tr><td>Pounding headache</td></tr>
<tr><td>Flushing, sweating or blotching above level of injury</td></tr>
<tr><td>Pale, cold, goosebumps below level of injury</td></tr>
<tr><td>Nasal congestion</td></tr>
<tr><td>Visual changes</td></tr>
<tr><td>Respiratory distress or bronchospasm</td></tr>
<tr><td>Metallic taste in mouth</td></tr>
<tr><td>Anxiety (apprehension of impending physical problem to fear of death is common)</td></tr>
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	Common Triggers: Blocked catheter, constipation, pressure ulcer, fractures, tight clothing Patients should be prescribed Nifedipine 10 mg (or suitable medication) which can be administered every 20–30 min if required (maximum of 40 mg in 24 hours). **What to do if you suspect AD:** *Do not put patient flat* *Call for medical assistance* Sit upright, lower patients leg Loosen abdominal binder, tight clothing Prepare medications Review Bladder Check BP (if has not decreased go straight to medical management) Review other triggers (such as bowels) and alleviate cause Check BP Medical management	
Consider Pain Management (as required)	Refer to Frimley Health Guideline's on Optimising analgesia in acute pain and Optimising analgesia in chronic pain. If pain is uncontrolled and further advice is required, consider an inpatient consult to the inpatient pain team which can be placed within orders in Epic	All
Nutritional Support (as required)	Refer the patient to the Dietitians on Epic at the initial nutrition screening post admission. Under the 'Orders' tab place a new order for 'Inpatient consult to Dietetics'.Provide as much information as possible in order that the referral is accepted by the Dietetic team (poorly completed or inappropriate referrals may be rejected).	DR
Therapy Input (within 24 hours of admission)	The patient should received 1 hour of therapy input per day (Monday-Friday) All patients should be assessed by Physiotherapy and Occupational Therapy within 24 hours of admission and referred to other therapy staff within a suitable time frame.	PT/OT/SLT

	Goal setting and an MDT meeting should be arranged within one week of admission and therapy role should be identified at this point.	
Initial Mobilisation	All patients should be on bed rest at up to 30 degree incline/bed tilt until they are medically stable and their spinal column stability is achieved. At all times the mean arterial pressure should be kept above 80mmHg and systolic pressure above 90mmHg Mobilisation could begin when the patient is medically and physiologically stable. Mobilisation should occur in a graduated manner with close monitoring and clear documentation of blood pressure and neurology both before and after the mobilisation.	PT
Position and Range of Movement Programme (72 hours from initial assessment)	Be aware of spinal stability and associated precautions 24 hour positioning programme should be in place within 72 hours of admission Establish a programme of passive, active or active assisted range of movement exercises. Encourage active movement and independence with stretches where possible.. Splints can be considered as part of the 24-hour postural management plan and used where the patient has or is at risk of contracture.	PT/OT
Spasticity Management	It is most common in patients diagnosed with ASIA grades B through D at the cervical level. It is important to differentiate between spasticity, spasms, clonus and stiffness to be able to find the most appropriate treatment options Outcome measures recommended to assess spasticity include; Modified Ashworth Scale and Penn Spasm Frequency Scale Patients should be assessed and treated on an individual basis and should be referred to the neurology outliers team or specialist spinal physiotherapist for expertise in this area. Where required advice can be sought from the specialist spinal cord injury centre, Stanmore.	PT/OT
FES/NMES	FES/NMES in SCI may be considered to reduce spasticity, increase range of movement and muscle strength, increase stamina/ fatigue resistance of muscles, increase sensory awareness, reduce pain, facilitating voluntary movement and support return of function. It can also be used preventatively against secondary effects such as contractures.	PT

	The risk of autonomic dysreflexia should be considered if using NMES/FES in patient with an injury at T6 level or above.	
Upper Limb Management	Patients should be asked about shoulder pain from the initial assessment and at regular intervals throughout their admission. When pain is reported at rest or while moving, a thorough assessment should be undertaken. Physiotherapy and Occupational Therapy team should work together to manage the upper limb and ensure each team have agreed their goals and management plan.	PT/OT
Occupational Therapy Assessment (Referral within 48 hours of admission)	OTs will provide an assessment of upper limb function, posture and mobility, seating requirements and wheelchair assessment (including assessment of pressure relieving equipment), functional activities and will work closely with the MDT to provide education and rehabilitation to SCI patients. OTs will explore adaptive equipment and technology and will consider the individual's home environment as part of discharge planning where appropriate. Signposting to local community support services (i.e. Spinal Injuries Association) will also be completed as part of holistic intervention. Timely Intervention Checklists should be used to guide treatment (see full guideline) Referrals should be made to Occupational Therapy at the point of admission (via EPIC) to ensure timely intervention is provided	OT
Seating assessment and wheelchair provision On agreement by MDT	There should be clearance and documentation from the medical team prior to sitting a patient. The documentation should include any precautions/restrictions for example if a collar or brace is required. Please ensure therapeutic intervention is considered on an individual basis. Postural assessment should be completed to guide the type of wheelchair required.	OT

	Pressure distribution should be maximised to prevent pressure sores. Pressure cushions should be utilised where appropriate. Pressure considerations: Do not seat patients with nay grade of pressure sore or moisture lesion where pressure will be directly applied to that area. Refer to Pressure Care Considerations above.	
Standing Programme On agreement by MDT	Individuals should be assessed for standing by the physiotherapist as soon as physiologically stable and it is practically possible following SCI with MDT agreement. All patients with a SCI should be individually assessed for potential benefits and potential problems to standing. This will ensure standing is carried out in an appropriate manner with appropriate observations Ensure clearance from medical team is documented including any precautions or restrictions. Consider use of abdominal binder/long TED stcokings to support BP Guidelines recommend 30-60 mins at least 3 x week	PT
SLT Assessment Within 24 hours of referral to SLT	Routinely required for patients with high cervical spine injuries and/or those requiring ventilation (+/- tracheostomy) plus any other patient showing signs and symptoms of dysphagia, issues with feeding or communication.	SLT
Can patient make needs known? Initial assessment	For patient with difficulty communicating refer to SLT. Consider environmental controls (referral to OT/SLT)	SLT/OT
Holistic Management	Consider use of ‘This is me’ Daily timetables may help to structure a patients day	ALL

	Consider working with patients family/and or pets (with consent) to help with engagement in therapy Consider the benefits of fresh air and taking the patient outside	
Patient Education	The London Spinal Cord Injury Centre (LSCIC) have developed a patient education programme. The aim of the education programme is to assist the patient in becoming verbally or physically independent. The education programme can be introduced to the patient once the patient has had a diagnosis and prognosis meeting. The patient will be supported by their nursing and therapy team to read through this information.	PT/OT
Consider psychological, emotional and peer support As required	Consider SIA, Back Up Trust, Peer Support For those on ICU the patient can be referred to the Critical Care Rehabilitation and Follow Up Service For support with psychological wellbeing in the first instance advice may be sought from staff within Frimley Health who are Level 1 psychological first aid trained in management of patients with a SCI. Concerns raised regarding a patients psychological health should be highlighted to the medical team who can make appropriate onward referrals and consider anti-depressants if required.	ALL
Communication with Patient, Family and MDT	Maintain open and regular communication with the patient and their family regarding the patient's condition, treatment plan, and prognosis. MDT meetings should occur weekly	ALL
Goal Setting Within 1/52 of admission	To be completed with patient, family and all MDT involved as able	ALL

	Goals should be agreed and set at the earliest opportunity ideally within 1 week of admission and reviewed on a weekly basis thereafter Use SCIM to guide setting appropriate functional goals	
Use of appropriate outcome measures Within 1/52	ASIA (determine the extent of a SCI) SCIM (evaluate disability and functional changes in persons with SCI) MoCA (early detection of mild cognitive impairment) IPAT (detecst psychological stress on an Intensive Care Unit) MAS (measures spasticity in individuals with lesions to the central nervous system) PSFS (self-report measure of the frequency of muscle spasms)	PT/OT/SLT
Social Support	Charities that'ss upport both the patient and family include Spinal Injuries Association (SIA), ASPIRE and BackUp Trust	ALL
Discharge Planning ASAP	All patients should be discussed at a MDT meeting with or reviewed by LSCIC, Stanmore to understand prognosis and potential for rehabilitation. Discharge pathway should be agreed with the local MDT and LSCIC, Stanmore in a timely manner.	ALL