Purpose

To establish minimum practice standards for the management of Malignant Spinal Cord Compression (MSCC) throughout WA Country Health Service (WACHS). This Clinical Practice Standard for MSCC management may be used in conjunction with specific site instructions/ requirements.

Further information relating to specialty areas including Child and Adolescent Health Service (CAHS), Women and Newborn Health Services (WNHS) and Mental Health Services can be found via healthpoint.hdwa.health.wa.gov.au.

Scope

All medical, nursing, midwifery and allied health staff employed within WACHS. All health care professionals are to work within their scope of practice appropriate to their level of training and responsibility. Further information can be found via healthpoint.hdwa.health.wa.gov.au.

Considerations for this CPS

Operational Directive (OD) / Information Circular (IC) Search: www.health.wa.gov.au

MSCC is an oncology and haematology emergency requiring prompt recognition and intervention[1-4]. Oncology/Haematology emergencies are those resulting from either cancer or cancer treatment

1. In the event of a significant deterioration in patients clinical condition, activate MER as per WACHS Clinical Escalation of Acute Physiological Deterioration Including Medical Emergency Response) Policy

2. Patients with suspected MSCC will remain on strict bed rest **with full spinal precautions** until the stability of the spinal cord is determined[1,5]

3. Maintain standard precautions at all times including the use of personal protective equipment (PPE). Hand hygiene must be performed according to the Hand Hygiene Policy in Infection Control guidelines.

General Information

Malignant spinal cord compression (MSCC), a well-recognised devastating complication of cancer, is defined

> *"As a compression of the thecal sac by tumour in the epidural space either at the level of the spinal cord or cauda equina[1,6,7]"*

MSCC is considered an emergency because of the severe disability that results if treatment is not initiated as a matter of urgency[1,3,4]. Recognition can be difficult as non-specific back pain, the most frequent symptom of MSCC, is common both in the general population and patients with cancer. Outside of oncology services patients with MSCC may present with nonspecific back pain via other services such as physiotherapy outpatient and /or spinal- orthopaedic triage.

The biggest barrier to preventing paralysis from MSCC is lack of awareness of the condition and a lack of urgency in investigation and subsequent treatment[4,8,9]. Patients who have cancer and bone metastases or have a higher risk (table 1) of developing bone metastases should be provided with information on the symptoms malignant spinal cord compression outlining what to do and whom to contact if symptoms develop or worsen[1,5,8-10].

Table 1 Malignancies associated with increased risk of MSCC

Primary malignancies with a higher risk of developing MSCC[1,10,11] are:	**Other malignancies with risk include:**
• Lung • Prostate • Breast	• Renal • Lymphomas • Multiple myeloma • Gastrointestinal malignancies

Risk Assessment for MSCC

Risk assessment must be completed immediately MSCC is suspected and spinal precautions implemented. Treatment to be initiated on provisional diagnosis[1,10]

- Consider cultural, ethical and communication requirements of the patient
- Establish the location of the primary tumour and ascertain the presence of bony metastases through the review of the patient health record and diagnostic imaging reports[1]
- Explain the condition to the patient, family and/or carer and gain consent for any procedure/s
- Maintain standard safety precautions for infection control

Diagnosis of MSCC [1,10,12] requires

- Review of Medical history
- General physical examination
- Comprehensive central nervous system (CNS) examination
- Spinal Imaging to confirm diagnosis but also to aid planning for surgical or radiotherapy treatments[12]
- Complete Assessment as per below:

Refer for urgent medical assessment and commence treatment if any of the clinical signs listed below are present

Back pain[1,5,10]

- New onset of back pain or neurologic symptoms such as symmetric weakness
- Radicular pain
- Changes in location and/or character of pain
- Pain relieving factors such as sitting

Factors which aggravate back pain

- Supine position
- Coughing/sneezing
- Valsalva manoeuvre

Changes to motor function [1,5,10]

- Limb weakness
- Heaviness/stiffness of lower limbs
- Unsteady gait
- Ataxia
- Paralysis

Changes to sensory function[1,13] **: Sensory abnormalities develop in an ascending manner**

- Numbness / tingling
- Paraesthesia / altered/loss of sensation touch / pain / thermal

May have combination of motor and sensory loss; which may be complete or partial

Changes to respiratory function[1,13] Compression at C3-C5 present varying degrees of respiratory compromise. Assess patient for-

- Chest expansion
- Air entry
- Respiratory rate
- Respiratory distress

Monitor

- Blood gasses (arterial and/or venous) to detect early deterioration
- Oxygen saturation
- Vital capacity to determine lung volume and need for assistive or complete mechanical ventilation

Changes to circulatory function[1]**:**

Spinal shock manifests as hypovolaemia even though there has been no blood loss. Assess patient for

- Hypotension
- Bradycardia occurs with both spinal shock and autonomic dysreflexia

Activate MER where criteria are met

Changes to Bowel Function[14]

- Difficulty expelling stool
- Constipation
- Loss of feeling
- Faecal incontinence

Changes to Urinary Function

- Difficulty initiating urinary flow
- Urinary retention / Urinary frequency
- Urinary incontinence

Emergency Management of MSCC

Goals of management [3]

1. Reduction of symptoms
2. Improve remaining quality of life
3. Increase survival rate
4. Improve / preserve neurological condition

On suspicion of malignant spinal cord compression dexamethasone should be commenced and an urgent MRI/CT scan performed to delineate the problem

Assessment of contraindications for MRI to be conducted.

If MRI/CT Scan imaging not available locally then transfer to a site where a minimum of CT scan can be conducted is to be arranged urgently.

Patients requiring log roll and/or cervical neck hold during intra and/or inter-hospital transfers need to be escorted by a nurse with appropriate training/skill

Treatment of metastatic spinal disease is complex usually requiring multi-modality treatment and depends on many factors including tumour type and degree of spread.

If patient is known to have cancer and is under the care of a medical oncologist or haematologist – the medical officer must inform the treating consultant of patient's condition to discuss ongoing management.

- Patients with MSCC are often being managed with palliative intent. Patients should be supported to make decisions about their treatment and management. Goals of care and patients priorities should be considered throughout their care

- Refer to orthopaedic or neurosurgical consultant for review of imaging and opinion regarding

  -Stability of spinal column
  -Recommended treatment options
  -Need for external supportive/restrictive devices (braces)
  -Indicated mobility restrictions
- If patient for non-surgical management of their MSCC, recommend referral to relevant specialist for consideration of the following treatment options Corticosteroids
- Radiotherapy
- Systemic anti-cancer therapySurgery
- Analgesia
- Bisphosponates
- Vertebroplasty and Kyphoplasty

Observations

Monitor Physiological Observations 4/24 or as clinically indicated: Refer to Clinical Observations and Assessments Clinical Practice Standard (Physiological, neurovascular, neurological and fluid balance)

Note rate and effort of respirations

- Daily Urinalysis if patient on Dexamethasone

Pain Assessment[1] [13-15]

Assess pain for:

- Location / Type / Intensity / Duration
- Aggravating and or relieving factors
- Change in location or character

- Pain score daily and PRN
- Administer prescribed analgesia
- Assess pain and document efficacy at least 30-60 minutes post administration of pain relief
- Liaise with MO if analgesia is inadequate or side effects are observed

Mobility [1,14,15]

On admission or at suspicion/diagnosis of MSCC establish immediately what restrictions there are on patients' mobility:

- Initiate full spinal precautions until documented otherwise by neurosurgical or orthopaedic Consultant
- Maintain strict bed rest with full spinal precautions if suspicious of MSCC, whilst awaiting outcome of neurosurgical or spinal orthopaedic review
- Avoid pressure relieving mattresses
- Position and mobilise patient as recommended by medical team, in consultation with physiotherapist
- Aim to prevent further injury to spinal cord from an unstable spinal column (higher risk with cervical and thoracic lesions)
- Prevent further movement of spine if suspected/documented vertebral instability
- Assess patient requirement for external stabilising devices
- Maintain spinal alignment during positioning/turning
- If admitted to hospital with no compression symptoms and stable neurology: patient to mobilise as able and if safe to do so
- Inpatient referral to physiotherapy

Prevention of complications immobility[5]

- Assess need for TEDS
- Assess for DVT Prophylaxis requirements
- Adhere to progressive ambulation as prescribed by physiotherapist Refer to site specific guidelines

Safety

Patient may have motor and/or sensory loss - identify potential hazards

- Complete Falls Risk Management Tool: Refer to the Falls Prevention and Management Clinical Practice Standard
- Initiate minimum falls prevention standards
- Assess the environment for hazards and minimise risks, e.g. hot drinks, sharp objects
- Assess patient with activities of daily living and refer to Occupational Therapy for assessment

Diet/Hydration [1,15]

- Monitor fluid intake- patient may have fluid restrictions in place
- Facilitate optimal nutrition
- High protein diet
- Nourishing fluids
- Dietician consult

Skin Integrity/Hygiene [1,15]

- Be aware of possible motor/sensory impairment
- Daily assessment of skin status (high risk of skin breakdown)
- Regular pressure area care/position changes as per spinal precautions
- Specific skin care if patient is undergoing radiotherapy treatment
- Ensure meticulous hygiene especially if incontinent

Bladder Management [1,15]

- Assess for alteration in micturition and report
  - Hesitancy/difficulty voiding
  - Urinary retention or incontinence
- Maintain accurate fluid balance chart – monitor fluid restrictions
- Bladder scans post voiding and 6 hourly PRN
- Intermittent catheterisation is the gold standard for bladder rehabilitation[16]
- Observe for urinary tract infection and ensure treatment is initiated promptly
- Refer for bladder rehabilitation as appropriate

Bowel Management [1,15]

- Establish patients normal bowel pattern
- Implement bowel regimen as soon as possible
- Observe for signs and symptoms of impaction/paralytic ileus
  - Distension / Nausea and vomiting / Absent bowel sounds
- Ensure diet and fluids are appropriate
  - High fibre diet / Natural laxatives
- Regular oral aperients
- Record of bowel movement each shift

Comfort[13]

- Ensure adequate analgesia
- Assess requirement for anti-emetic therapy if receiving radiotherapy

Psychosocial Support and Education[1]

- Provide patient with information about MSCC
- Complete psychosocial screening tool and initiate appropriate referral to WA Psycho-Oncology Service (WAPOS) for assessment if indicated
- Early involvement with social work services for discharge planning and transition of care
- For further information on additional counselling/support services for cancer patients

Rehabilitation

All patients admitted to hospital must have access to a full range of healthcare professional support services for assessment, advice and rehabilitation[1,5]. Discharge planning and ongoing care, including rehabilitation for patients with MSCC, should start on admission and be led by the patients specialist and/or the Multi-Disciplinary Team responsible for clinical care. It should involve the patient and their families and carers, , rehabilitation team and appropriate primary care team[10,17].

Implement discharge planning on an individual basis with involvement from all members of the multi-disciplinary team involved in the patients management[1,10]. Including

- Early involvement of multi- disciplinary team
- Set realistic functional goals in collaboration with the patient and family/carer

- Plan for and practice progressive ambulation in consultation with physiotherapist to optimise mobility level
- Assess falls risk and assist patient, family and carer minimise risks
- Occupational Therapy assessment to assist patient to maximise independence with activities of daily living including assessment of discharge destination
- Educate the patient to function with residual disabilities
- Assist patient to identify activities that can be attained and those permanently unattainable
- Plan for appropriate discharge destination in collaboration with patient, family/car
- Early involvement with community palliative care as appropriate when planning discharge to home

Admission to specialist rehabilitation units should be considered for:

- Patients with a good prognosis
- High activity tolerance
- Strong rehabilitation potential [1,10]

Potential Problems[1,5,13]

- Disease progression can lead to a rapid deterioration and paraplegia/ tetraplegia can occur
- Respiratory arrest is a risk If the cervical spine is involved
- Delay in treatment may lead to complete paralysis
- Changes in circulatory function can manifest as hypovolaemia leading to bradycardia which occurs in both Spinal Shock and Autonomic Dysreflexia[1]. Symptoms include
  - Acute rise in blood pressure
  - Severe headache
  - Visual blurring
  - Flushing above the injury level and pallor below
  - Seizures

Corticosteroid Treatment:
Side effects of reducing corticosteroid dose could include:

- Dizziness
- Weakness/fatigue
- Depression
- Anorexia, nausea and vomiting
- Hypoglycaemia
- Low blood pressure
- A daily proton-pump inhibitor (PPI) should be considered when patients are on high dose corticosteroids.
- Blood glucose levels should be monitored in all patients receiving corticosteroids.
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Radiotherapy

- Ensure radiation field markings remain visible and are not removed
- Encourage patient to wear loose fitting clothing over the treatment site
- Avoid hot compresses, adhesive tapes, soaps and detergents

- Use only approved lotions/creams - **Do Not** use powders, perfumes or deodorants near the treatment site

Staffing Requirements

All Staff are required to maintain the minimum level of competency that is required for their role.

- Adequate staffing levels are required to undertake procedures safely and level must be appropriate for the clinical condition of the patient

Assemble the minimum number of personnel required to move patient
- Four people to reposition patients with thoraco-lumbar or sacral level involvement
- Five people to reposition patients with cervical level involvement

Patient Monitoring

Individualised management plan to be documented in the patients' health records as soon as is practicable. At a minimum the plan must consider:

- Diagnosis
- Presence of comorbidities and treatment
- Protocol requirements
- Any restriction to intervention associated with advanced health directives (AHD) or the like

Assessment to include
Physiological Observations including respiratory assessment: Refer Clinical Observations and Assessments Clinical Practice Standard (Physiological, neurovascular, neurological and fluid balance)
- Signs of infection
- Pain assessment
- Bladder and Bowel function
- Skin Integrity and pressure injury assessment
- Mobility Status
- Emotional and Psychological Status

For cervical lesions observe for respiratory deterioration
- Liaise with RMO for frequency of observations

Corticosteroid Treatment
Patients on corticosteroid treatment require
- Physiological Observations to be undertaken 4 hourly or as clinically indicated
- Daily urinalysis for glycosuria
- Monitoring of Blood Glucose Levels as at risk of hyperglycaemia
- Monitoring of signs of infection
- Assessment of oral mucosa daily
- Monitoring for gastric bleeds
- Monitoring for changes in mental state

Radiotherapy

- Assess and document skin integrity daily and as required for any changes such as erythema and desquamation
- Ensure radiation oncology nurses review patient if a skin reaction has occurred

Monitor and manage further side effects depending on the treatment area as follows:

Oesophagitis

- Administer analgesia and antacids as prescribed
- Consider a soft diet
- Consider referral to dietician

Nausea and vomiting

- Administer anti-emetics as prescribed

Diarrhoea

- Exclude infective cause
- Administer antidiarrhoeal as prescribed

Dysuria

- Exclude infective cause
- Encourage oral fluid intake

Fatigue

- Provide and encourage rest
- Consider gentle exercise as appropriate

Documentation

Failure to accurately and legibly record, and understand what is recorded, in patient health records contribute to a decrease in the quality and safety of patient care. Refer to WACHS Documentation Clinical Practice Standard

Documentation to be completed (but not limited to)

- Integrated admission assessment form as appropriate
- Spinal precautions and mobility level
- Observation chart
- Fluid balance chart
- Patient health record
- Braden Scale
- Falls Risk Management tool
- Document position and character of pain e.g local or radicular
- Record pain score daily, PRN, and 10-60 mins post PRN analgesic

Clinical Handover

Information exchange should adhere to the WA Health Clinical Handover Policy (iSoBAR).

Compliance Monitoring

Evaluation, audit and feedback processes should be in place to monitor compliance.

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Legislation

Acts Amendment (Consent to Medical Treatment) Act 2008
Carers Recognition Act 2010
Civil Liability Act 2002
Disability Services Act 1993
Equal Opportunity Act 1984
Equal Opportunity Regulations 1986
Guardianship and Administration Act 1990
Health Practitioner Regulation National Law (WA) Act 2010
Mental Health Act 2014
Occupational Safety and Health Regulations 1996
Poisons Act 1964
Medicines and Poisons Regulations 2016
Medicines and Poisons Amendment Regulations 2020
Public Sector Management Act 1994
State Administrative Tribunal Act 2004
State Administrative Tribunal Regulations 2004
State Records Act 2000 - The children and community Services Amendment (Reporting Sexual Abuse of Children) Act 2008
The Children and Community Services Amendment Bill 2019

Standards

NSQHS Standards 2nd ed: https://www.safetyandquality.gov.au/standards/nsqhs-standards
National Standards for Mental Health Services (NSHMS): https://www.safetyandquality.gov.au/our-work/mental-health/national-standards-in-mental-health

WA Health System Policies

healthpoint.hdwa.health.wa.gov.au
www.health.wa.gov.au

Clinical Handover Policy - MP 0095
Clinical Incident Management Policy 2019 - MP 0122/19
Consent to Treatment Policy - OD0657/16
National Safety and Quality Health Service Standards Accreditation Policy - MP 0134/20

Recognising and Responding to Acute Deterioration Policy – MP 0086/18
Credentialling and Defining Scope of Clinical Practice Policy
Mental Health Statement of Rights and Responsibilities - Part V: Rights and Responsibilities of Carers and Support Persons - 2012
Aboriginal Health and Wellbeing Policy - MP 0071/17

WACHS Policies

Hand Hygiene Policy 2019
Patient Identification Policy - 2019
Clinical Escalation of Acute Physiological Deterioration Including Medical Emergency Response Policy – 2020
Risk Assessment for Admission of the Heavier Patient Policy - 2016
Consumer and Carer Engagement Policy - 2017
Partnering with Consumers Guideline - 2017
Recognising the Importance of Carers Policy - 2017
Falls Prevention and Management Clinical Practice Standard - 2021
Documentation Clinical Practice Standard 2018
Infection Prevention and Control Policy - 2019
Learning and Development Policy - 2020

WACHS Goals of Patient Care (Adults) Guideline 2020

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This document can be made available in alternative formats on request for a person with a disability