

Quick reference guide

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Metastatic spinal cord compression

Diagnosis and management of adults at risk of and with metastatic spinal cord compression

About this booklet

This is a quick reference guide that summarises the recommendations NICE has made to the NHS about metastatic spinal cord compression (NICE clinical guideline 75).

Who should read this booklet?

This quick reference guide is for healthcare professionals and other staff who care for people with metastatic spinal cord compression.

Who wrote the guideline?

The guideline was developed by the National Collaborating Centre for Cancer, which is based at the Velindre NHS Trust in Cardiff. The Collaborating Centre worked with a group of healthcare professionals (including consultants, GPs and nurses), patients and carers, and technical staff, who reviewed the evidence and drafted the recommendations. The recommendations were finalised after public consultation.

For more information on how NICE clinical guidelines are developed, go to www.nice.org.uk

Where can I get more information about the guideline?

The NICE website has the recommendations in full, reviews of the evidence they are based on, a summary of the guideline for patients and carers, and tools to support implementation (see the back cover for more details).

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NICE clinical guidelines are recommendations about the treatment and care of people with specific diseases and conditions in the NHS in England and Wales.

This guidance represents the view of NICE, which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. However, the guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer, and informed by the summary of product characteristics of any drugs they are considering.

Implementation of this guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement the guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard to promoting equality of opportunity. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with those duties.

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Introduction

- Metastatic spinal cord compression (MSCC) is defined in this guideline as spinal cord or cauda equina compression by direct pressure and/or induction of vertebral collapse or instability by metastatic spread or direct extension of malignancy that threatens or causes neurological disability.
- It is important to recognise the impact of an MSCC diagnosis on people with MSCC and their families and carers, and understand their needs and the support required throughout their care.
- Some people with MSCC experience delays in their treatment and care and may, as a result, develop avoidable disability and die prematurely.
- This guideline will help to ensure that facilities are available for early diagnosis and that treatment is coordinated, follows best practice and whenever possible prevents paralysis from adversely affecting the quality of life of people living with cancer.

Key priorities for implementation

Service configuration and urgency of treatment

- Every cancer network should ensure that appropriate services are commissioned and in place for the efficient and effective diagnosis, treatment, rehabilitation and ongoing care of patients with MSCC. These services should be monitored regularly through prospective audit of the care pathway.

Early detection

- Inform patients at high risk of developing bone metastases, patients with diagnosed bone metastases, or patients with cancer who present with spinal pain about the symptoms of MSCC. Offer information (for example, in the form of a leaflet) to patients and their families and carers which explains the symptoms of MSCC, and advises them (and their healthcare professionals) what to do if they develop these symptoms.
- Contact the MSCC coordinator urgently (within 24 hours) to discuss the care of patients with cancer and any of the following symptoms suggestive of spinal metastases:
 - pain in the middle (thoracic) or upper (cervical) spine
 - progressive lower (lumbar) spinal pain
 - severe unremitting lower spinal pain
 - spinal pain aggravated by straining (for example, at stool, or when coughing or sneezing)
 - localised spinal tenderness
 - nocturnal spinal pain preventing sleep.
- Contact the MSCC coordinator immediately to discuss the care of patients with cancer and symptoms suggestive of spinal metastases who have any of the following neurological symptoms or signs suggestive of MSCC, and view them as an oncological emergency:
 - neurological symptoms including radicular pain, any limb weakness, difficulty in walking, sensory loss or bladder or bowel dysfunction
 - neurological signs of spinal cord or cauda equina compression.

Imaging

- Perform MRI of the whole spine in patients with suspected MSCC, unless there is a specific contraindication. This should be done in time to allow definitive treatment to be planned within 1 week of the suspected diagnosis in the case of spinal pain suggestive of spinal metastases, and within 24 hours in the case of spinal pain suggestive of spinal metastases and neurological symptoms or signs suggestive of MSCC, and occasionally sooner if there is a pressing clinical need for emergency surgery.

Treatment of spinal metastases and MSCC

- Patients with severe mechanical pain suggestive of spinal instability, or any neurological symptoms or signs suggestive of MSCC, should be nursed flat with neutral spine alignment (including 'log rolling' or turning beds, with use of a slipper pan for toilet) until bony and neurological stability are ensured and cautious remobilisation may begin.

continued

- Start definitive treatment, if appropriate, before any further neurological deterioration and ideally within 24 hours of the confirmed diagnosis of MSCC.
- Carefully plan surgery to maximise the probability of preserving spinal cord function without undue risk to the patient, taking into account their overall fitness, prognosis and preferences.
- Ensure urgent (within 24 hours) access to and availability of radiotherapy and simulator facilities in daytime sessions, 7 days a week for patients with MSCC requiring definitive treatment or who are unsuitable for surgery.

Supportive care and rehabilitation

- Discharge planning and ongoing care, including rehabilitation for patients with MSCC, should start on admission and be led by a named individual from within the responsible clinical team. It should involve the patient and their families and carers, their primary oncology site team, rehabilitation team and community support, including primary care and specialist palliative care, as required.

Patient-centred care

Treatment and care should take into account patients' individual needs and preferences. Good communication is essential, supported by evidence-based information, to allow patients to reach informed decisions about their care. Follow Department of Health advice on seeking consent if needed. If the patient agrees, families and carers should have the opportunity to be involved in decisions about treatment and care.

Patient information

- Give patients with cancer and spinal pain, patients with bone metastases and patients at high risk of developing bone metastases information explaining what to do and who to contact if they develop symptoms of spinal metastases or MSCC or if their symptoms progress while waiting for investigation.

Symptoms

Symptoms suggestive of spinal metastases

- pain in the thoracic or cervical spine
- progressive lumbar spinal pain
- severe unremitting lumbar spinal pain
- spinal pain aggravated by straining
- localised spinal tenderness
- nocturnal spinal pain preventing sleep.

Neurological symptoms or signs suggestive of MSCC

- radicular pain
- limb weakness
- difficulty walking
- sensory loss
- bladder or bowel dysfunction
- signs of spinal cord or cauda equina compression.

- If patients with cancer have symptoms suggestive of spinal metastases, discuss with the MSCC coordinator within 24 hours.
- If patients with cancer and symptoms suggestive of spinal metastases have neurological symptoms or signs suggestive of MSCC, discuss with the MSCC coordinator immediately and view as an emergency.
- Review frequently patients with cancer who have non-specific lumbar spinal pain and patients without cancer who have suspicious spinal pain for:
 - development of progressive pain or other symptoms suggestive of spinal metastases (contact the MSCC coordinator within 24 hours), or
 - development of neurological symptoms or signs suggestive of MSCC (contact the MSCC coordinator immediately).
- Treat or refer patients without cancer who have stable and mild symptoms of suspicious spinal pain, with or without neurological symptoms, by normal non-specific spinal pathways. Refer by cancer pathway if concerned.
- If possible discuss patients with suspected MSCC, a poor performance status and widespread metastatic disease with their primary tumour site clinician and spinal senior clinical adviser before any urgent imaging or hospital transfer.
- If possible urgently discuss patients with suspected MSCC who have been completely paraplegic or tetraplegic for more than 24 hours with their primary tumour site clinician and spinal senior clinical adviser before any imaging or hospital transfer.
- Do not transfer unnecessarily patients with MSCC who are too frail or unfit for specialist treatment.

Imaging

Magnetic resonance imaging

- Perform magnetic resonance imaging (MRI) of the whole spine in patients with suspected MSCC, unless contraindicated.
- Include sagittal T1, short T1 inversion recovery and sagittal T2 weighted sequences.
- Perform supplementary axial imaging through any significant abnormality noted on the sagittal scan.
- Configure lists to allow MRI at short notice. Out-of-hours MRI should be available in emergency situations if immediate treatment is planned.
- If MRI is not available at the referring hospital, transfer patients with suspected MSCC to a unit with 24-hour capability.
- Perform MRI in time to plan definitive treatment:
 - within 1 week in patients with symptoms suggestive of spinal metastases
 - within 24 hours in patients with symptoms suggestive of spinal metastases and neurological symptoms or signs suggestive of MSCC
 - sooner (including out-of-hours) if emergency treatment is needed.

Other imaging options

- If MRI is contraindicated, contact the MSCC coordinator to determine the best imaging option.
- Consider myelography if other imaging options are contraindicated or inadequate. Undertake myelography only at a neuroscience or spinal surgery centre.
- Consider targeted computerised tomography to assess spinal stability and plan vertebroplasty, kyphoplasty or surgery.
- Do not use plain radiographs to diagnose or exclude spinal metastases or MSCC.
- Do not routinely image the spine if patients with malignancy are asymptomatic.
- Serial imaging of the spine in asymptomatic patients with cancer at high risk of developing spinal metastases should only be done as part of a randomised controlled trial.

Treatment and care

- The care of patients with MSCC should be determined by senior clinical advisers (clinical oncologists, spinal surgeons or radiologists with experience and expertise in treating patients with MSCC) in collaboration with primary tumour site clinicians as required, taking into account the patient's preferences and condition.

Mobilisation

- Nurse flat with spine in neutral alignment patients with severe mechanical pain suggestive of spinal instability or neurological symptoms or signs suggestive of MSCC until spinal and neurological stability are ensured. Use log rolling techniques or turning beds and a slipper pan.
- Once any spinal shock has settled and the spine and neurology are stable, monitor and assess during gradual sitting (to 60 degrees) over 3–4 hours.
- If blood pressure is stable and there is no significant increase in pain or neurological symptoms, continue to unsupported sitting and mobilisation.
- If pain or neurological symptoms worsen, return to a position where these changes reverse and reassess spinal stability.
- If patients are not suitable for definitive treatment they should be helped to position themselves and mobilise as symptoms permit after a discussion of the risks. Provide orthoses or specialist seating, if appropriate.

Corticosteroids

- Offer a loading dose of at least 16 mg of dexamethasone to patients with MSCC as soon as possible after assessment (unless contraindicated, including a significant suspicion of lymphoma). Follow with a short course of 16 mg dexamethasone daily while treatment is being planned.
- Continue dexamethasone 16 mg daily in patients awaiting surgery or radiotherapy for MSCC. After surgery or the start of radiotherapy, gradually reduce the dose of dexamethasone over 5–7 days and stop. If neurological function deteriorates, increase the dose temporarily.
- In patients with MSCC who do not proceed to surgery or radiotherapy after planning, gradually reduce the dose and stop dexamethasone. Reconsider the dose if neurological function deteriorates.
- Monitor blood glucose levels in all patients receiving corticosteroids.

Treatments for pain relief and to prevent MSCC

- Decisions on the most appropriate combinations of treatment to relieve pain or prevent paralysis caused by MSCC (see table 1) should be made by spinal specialists in consultation with primary tumour site clinicians, and with the full involvement of the patient.

Table 1 Treatment options for pain relief and to prevent MSCC

Conventional analgesia	<ul style="list-style-type: none"> • Offer to patients with painful spinal metastases as described in the WHO three-step pain relief ladder.
Specialist pain care	<ul style="list-style-type: none"> • Consider invasive procedures and neurosurgical interventions for patients with intractable pain from spinal metastases.
Bisphosphonates	<ul style="list-style-type: none"> • Offer to patients with vertebral involvement from myeloma or breast cancer, and patients with prostate cancer if conventional analgesia is inadequate. • Do not offer to patients with other tumour types or to prevent MSCC except as part of a randomised controlled trial.
Palliative radiotherapy	<ul style="list-style-type: none"> • Offer 8 Gy single fraction to patients with spinal metastases causing non-mechanical vertebral pain, even if they are completely paralysed. • Do not offer radiotherapy to prevent MSCC in patients with asymptomatic spinal metastases except as part of a randomised controlled trial.
Vertebroplasty [†] or kyphoplasty	<ul style="list-style-type: none"> • Consider for patients with spinal metastases and no evidence of MSCC or spinal instability if they have: <ul style="list-style-type: none"> – mechanical pain resistant to conventional analgesia, or – vertebral body collapse. • Perform only after agreement between oncologist, interventional radiologist and spinal surgeon, in consultation with the patient.
Spinal stabilisation surgery	<ul style="list-style-type: none"> • Urgently consider for patients with spinal metastases and imaging evidence of structural spinal failure with spinal instability. • Consider for patients with spinal metastases and mechanical pain resistant to conventional analgesia, even if they have been completely paralysed for more than 24 hours. • Do not offer to prevent MSCC in patients with spinal metastases without pain or instability, except as part of a randomised controlled trial.
External spinal support	<ul style="list-style-type: none"> • Consider for patients with MSCC and severe mechanical pain and/or imaging evidence of spinal instability, who are unsuitable for surgery.

[†] The MHRA has issued safety notices relating to vertebroplasty (reference MDA/2003/021).

Definitive treatment for patients with MSCC

- Start definitive treatment before further neurological deterioration and ideally within 24 hours of an MSCC diagnosis.
- When planning definitive treatment:
 - attempt to establish the primary histology of spinal metastases (by tumour biopsy if necessary)
 - determine the number, anatomical sites, and extent of spinal and visceral metastases
 - take into account:
 - ◆ patient preferences
 - ◆ neurological ability
 - ◆ functional status
 - ◆ general health and fitness
 - ◆ previous treatments
 - ◆ magnitude of surgery
 - ◆ likelihood of complications
 - ◆ fitness for general anaesthesia
 - ◆ overall prognosis.
- Do not deny surgery or radiotherapy on the basis of age alone.

Surgery

Eligibility for surgery

- When deciding whether surgery is appropriate:
 - use recognised prognostic factors (including the revised Tokuhashi scoring system and American Society of Anaesthetists grading)
 - record and take into account relevant comorbidities.
- Consider speed of onset, duration, degree, and site of origin of neurological symptoms and signs when assessing urgency of surgery.
- Perform surgery before patients lose the ability to walk.
- Offer surgery, regardless of ability to walk, if patients have residual distal sensory or motor function and a good prognosis.
- Do not offer surgery to patients with MSCC who have been completely paraplegic or tetraplegic for more than 24 hours except for pain relief (see table 1).
- Only consider major surgical treatments for patients expected to survive longer than 3 months.

Type of surgery

- Offer surgery to achieve spinal cord decompression and durable spinal column stability and to maximise the probability of preserving spinal cord function without undue risk to the patient.
- Do not perform posterior decompression alone in patients with MSCC except for isolated epidural tumour or neural arch metastases without bony instability.
- Offer posterior decompression and internal fixation (with or without bone grafting) if spinal metastases involve the vertebral body or threaten spinal stability.
- Consider vertebral body reinforcement with cement for patients with MSCC and vertebral body involvement who are suitable for instrumented decompression but are expected to survive for less than 1 year.
- Consider vertebral body reconstruction with anterior bone graft for patients with MSCC and vertebral body involvement who are:
 - suitable for instrumented decompression,
 - expected to survive for 1 year or longer, and
 - fit to undergo a more prolonged procedure.
- Do not attempt en bloc excisional surgery except in rare circumstances, for example, if a solitary renal or thyroid metastasis is confirmed following complete staging.

Radiotherapy

- Offer fractionated radiotherapy as the definitive treatment of choice to patients with epidural tumour without neurological impairment, mechanical pain or spinal instability.
- Offer urgent fractionated radiotherapy (within 24 hours) to patients with MSCC who require definitive treatment but are unsuitable for surgery unless:
 - they have had complete paraplegia or tetraplegia for more than 24 hours and their pain is well controlled, or
 - their prognosis is too poor.
- Do not carry out preoperative radiotherapy.
- Offer postoperative fractionated radiotherapy to patients with a satisfactory outcome, once the wound has healed.
- If patients respond well to radiotherapy and symptoms recur after 3 months, consider surgery or further radiotherapy (keep the total dose below 100 Gy₂). Discuss the possible benefits and risks of further radiotherapy with the patient.

Supportive care

- Offer specialist psychological and spiritual support at diagnosis, during treatment and on discharge from hospital. Explain how to access these services.
- Offer bereavement support to families and carers¹.

Managing complications

Venous thromboembolism

- Offer thigh-length graduated compression/anti-embolism stockings (unless contraindicated) and/or intermittent pneumatic compression or foot impulse devices to patients with suspected MSCC on bed rest.
- Offer low molecular weight heparin to patients with MSCC who are at high risk of venous thromboembolism (including those treated surgically) and suitable for anticoagulation in addition to mechanical thromboprophylaxis².
- Individually assess the duration of thromboprophylaxis, based on risk factors, overall clinical condition and return to mobility.

Pressure ulcers

- Perform a risk assessment for pressure ulcers on initial presentation. Repeat every time the patient is turned while on bed rest, and then daily.
- Turn patients on bed rest every 2–3 hours using a log rolling technique.
- Encourage patients who are not on bed rest to mobilise regularly.
- Encourage and assist patients who are unable to stand or walk to perform pressure relieving activities at least every hour.
- Provide pressure relieving devices according to the pressure risk assessment score.
- Offer cushions and mattresses with high-grade pressure relieving properties to patients with restricted mobility or reduced sensation.
- Follow pressure sore assessment, prevention and healing protocols³.

¹ See 'Improving supportive and palliative care for adults with cancer' (NICE cancer service guidance).

² See 'Venous thromboembolism' (NICE clinical guideline 46).

³ See 'The use of pressure-relieving devices for prevention of pressure ulcers' (NICE clinical guideline 7) and 'The management of pressure ulcers in primary and secondary care' (NICE clinical guideline 29).

Bladder and bowel continence management

- Assess bowel and bladder function on initial presentation and start a plan of care.
- Monitor patients at least daily for changes in bladder and bowel function.
- Manage bladder dysfunction with a urinary catheter on free drainage. If long-term catheterisation is required, consider intermittent catheterisation or suprapubic catheters.
- Offer a neurological bowel management programme to patients with MSCC and disturbed bowel function⁴.
- Take into account patient preferences, and offer as required:
 - diet modification
 - constipating agents
 - rectal irrigation
 - faecal softeners
 - digital stimulation
 - surgery.
 - laxatives
 - manual evacuation

Circulatory and respiratory functioning

- Assess and monitor heart rate, blood pressure, respiratory rate and pulse oximetry in patients with MSCC.
- Manage postural hypotension in patients with MSCC with patient positioning and devices to improve venous return.
- Avoid overhydration as it may cause pulmonary oedema.
- Clear lung secretions with breathing exercises, assisted coughing and suctioning.
- Treat retained lung secretions and the consequences with deep breathing and positioning, supplemented by bi-phasic positive airway pressure and intermittent positive pressure ventilation, if necessary.

⁴ See 'Faecal incontinence' (NICE clinical guideline 49).

Rehabilitation and care at home

- Offer support services for assessment, advice and rehabilitation.
- Start discharge planning on admission. This should be led by a named healthcare professional, and involve the patient, their family and carers, their primary oncology site team, rehabilitation team and community support, including primary care and specialist palliative care as required.
- Focus rehabilitation on the patient's goals and desired outcomes, including functional independence, participation in normal activities of daily life and quality of life.
- Offer admission to a specialist rehabilitation unit to people who are most likely to benefit.
- Ensure community-based rehabilitation and supportive care services are available to people with MSCC following their return home.
- Ensure that care and equipment is provided in a timely fashion.
- Offer families and carers support and training before the patient is discharged home.

Service organisation

- Cancer networks should:
 - have a clear care pathway for the diagnosis, treatment, rehabilitation and ongoing care of patients with MSCC
 - commission and monitor appropriate services throughout the care pathway
 - ensure that access to MRI is available within 24 hours for all patients with suspected MSCC and 24-hour availability of MRI at centres treating patients with MSCC
 - establish a network site specific group for MSCC, including representatives from primary, secondary and tertiary care. This group should have strong links to the network site specific groups for primary tumours
 - appoint a network lead for MSCC.
- The network lead for MSCC should:
 - advise the network, commissioners and providers about the provision and organisation of services
 - ensure that the local care pathway is documented, agreed and consistent
 - ensure that there are appropriate points of telephone contact to an MSCC coordinator and senior clinical advisers
 - maintain a network-wide audit of the care pathway and outcomes of patients
 - arrange and chair twice-yearly meetings of the network site specific group to discuss patient outcomes and review the care pathway.

- Secondary or tertiary care centres should have an identified lead healthcare professional for MSCC who:
 - represents the hospital at network level to develop the care pathway
 - implements the care pathway and disseminates information about the diagnosis and appropriate management of patients
 - ensures good communication between all healthcare professionals involved in the care of patients with MSCC
 - raises awareness of the treatment options
 - contributes to regular audits of the care pathway
 - attends and contributes to the twice-yearly network site specific group meeting.
- Every centre that treats patients with MSCC should:
 - identify or appoint individuals to the role of MSCC coordinator and ensure its availability at all times
 - have a single point of contact to access the MSCC coordinator to advise clinicians and coordinate the care pathway
 - ensure 24-hour availability of senior clinical advisers to advise and support the MSCC coordinator and other clinicians and undertake treatment where necessary.
- The MSCC coordinator should:
 - provide the first point of contact for clinicians who suspect that a patient may be developing spinal metastases or MSCC
 - perform an initial telephone triage by assessing requirement for, and urgency of, investigations, transfer and treatment
 - advise on the immediate care of the spinal cord and spine and seek senior clinical advice, as necessary
 - gather baseline information to aid decision-making and collate data for audit purposes
 - identify the appropriate place for timely investigations and admission, if required
 - liaise with the acute receiving team and organise admission and mode of transport.
- Commissioners and councils should work jointly to provide equipment and support (including nursing and rehabilitation services) to people with MSCC and their carers and families when they return home.

Implementation tools

NICE has developed tools to help organisations implement this guidance (listed below). These are available on our website (www.nice.org.uk/CG75).

- Slides highlighting key messages for local discussion.
- Implementation advice on how to put the guidance into practice and national initiatives that support this locally.
- Costing tools:
 - costing report to estimate the national savings and costs associated with implementation
 - costing template to estimate the local costs and savings involved.
- Audit support for monitoring local practice.
- A local patient information template.

Further information

Ordering information

You can download the following documents from www.nice.org.uk/CG75

- The NICE guideline – all the recommendations.
- A quick reference guide (this document) – a summary of the recommendations for healthcare professionals.
- ‘Understanding NICE guidance’ – a summary for patients and carers.
- The full guideline – all the recommendations, details of how they were developed, and reviews of the evidence they were based on.

For printed copies of the quick reference guide or ‘Understanding NICE guidance’, phone NICE publications on 0845 003 7783 or email publications@nice.org.uk and quote:

- N1719 (quick reference guide)
- N1720 (‘Understanding NICE guidance’).

Related NICE guidance

For information about NICE guidance that has been issued or is in development, see www.nice.org.uk

Published

NICE has issued cancer service guidance on improving outcomes for people with brain and other CNS tumours, people with sarcoma and supportive and palliative care for adults with cancer, clinical guidelines on faecal incontinence (CG49), venous thromboembolism (CG46), the management of pressure ulcers (CG29), referral guidelines for suspected cancer (CG27) and pressure-relieving devices for the prevention of pressure ulcers (CG7) and interventional procedure guidance on vertebroplasty (IPG12) and kyphoplasty (IPG166).

Updating the guideline

This guideline will be updated as needed, and information about the progress of any update will be available at www.nice.org.uk/CG75

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