NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Guideline

Spinal metastases and metastatic spinal cord compression

Draft for consultation, March 2023

This guideline covers recognition, referral, investigation and treatment of spinal metastases and associated metastatic spinal cord compression (MSCC). It is also relevant for direct malignant infiltration of the spine and associated cord compression, which follow the same care pathway. The guideline aims to improve early diagnosis and treatment to prevent neurological injury.

This guideline will update and replace NICE guideline CG75 ‘Metastatic spinal cord compression in adults: risk assessment, diagnosis and management’ (published November 2008). We have proposed a change to the title of the guideline, to ‘Spinal metastases and metastatic spinal cord compression’, to more closely reflect the content of the updated guideline.

Who is it for?

- healthcare professionals working in primary, secondary and tertiary care, palliative care and hospices
- cancer alliances
- commissioners of metastatic spinal cord preventative, diagnostic and treatment services (including integrated care systems and NHS England specialised commissioning)
- voluntary sector organisations
- people with suspected or diagnosed spinal metastases, direct malignant infiltration of the spine or MSCC, their families and carers

What does it include?

- the recommendations
- recommendations for research
- rationale and impact sections that explain why the committee made the recommendations and how they might affect practice and services.
- the guideline context.

Information about how the guideline was developed is on the guideline's webpage. This includes the evidence reviews, the scope, details of the committee and any declarations of interest.

We have not reviewed the evidence for the recommendations shaded in grey, and cannot accept comments on them. In some cases, we have made minor wording changes for clarification. See update information more information.

Contents

Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in NICE's information on making decisions about your care.

Making decisions using NICE guidelines explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

This guideline covers spinal metastases and metastatic spinal cord compression (MSCC). It is also relevant to direct malignant infiltration of the spine and associated cord compression, which follow the same care pathway.

1.1 Organising and delivering services

These recommendations are for cancer alliances (or equivalent local partnerships), commissioners and service providers involved in planning, organising and delivering services.

Cancer alliances

1.1.1 Every cancer alliance should:

- have a clear care pathway for referral, diagnosis, treatment, rehabilitation and ongoing care of people with suspected or confirmed spinal metastases or MSCC
- ensure appropriate services are commissioned and in place for efficient and effective implementation of the care pathway
- monitor services regularly through prospective audit of the care pathway (for example, collecting outcome data for treatments).

1.1.2 The cancer alliance should appoint a lead for MSCC whose responsibilities include:

- advising the cancer alliance, commissioners and providers about the provision and organisation of clinical services
- ensuring that the local care pathway is documented, agreed and implemented consistently across the alliance
- maintaining an alliance-wide audit of incidence, timeliness of management and outcomes using nationally agreed measures
- arranging and chairing regular meetings of the MSCC steering group (at least twice a year), at which treatment outcomes will be reported and the local care pathway reviewed and amended if necessary (see also recommendation 1.1.4 for details of the steering group).

1.1.3 Services within the cancer alliance (including those in primary care and secondary and tertiary centres) should have an identified lead healthcare professional for MSCC whose responsibilities include:

- representing primary care and hospitals at alliance level in the development of care pathways
- implementing and disseminating information about the care pathway
- ensuring timely and effective communication between all relevant healthcare professionals involved in the care pathway, including those in palliative care
- raising and maintaining awareness and understanding of treatments among all clinical staff across the locality
- contributing to regular alliance MSCC audits of care
- attending and contributing to regular alliance MSCC steering group meetings.

1.1.4 Every cancer alliance should have a steering group for MSCC that:

- includes people with lived experience and representatives from primary, secondary and tertiary care
- includes an MSCC service representative, for example the MSCC coordinator
- has strong links to cancer alliance groups for primary tumours.

For a short explanation of why the committee made these recommendations and how they might affect services, see the rationale and impact section on cancer alliances.

Full details of the evidence and the committee's discussion are in evidence review B: service configuration - management.

Providing a coordinated MSCC service

1.1.5 Ensure that there is a designated local MSCC service with clear processes and referral pathways so that all people with suspected or confirmed spinal metastases or MSCC are referred to an MSCC service.

1.1.6 MSCC services should ensure that the role of MSCC coordinator is covered at all times (24 hours a day, 7 days a week) and is based in an oncology service. The role should be carried out by a designated senior clinician when the MSCC coordinator is not working (for example an on-call oncology registrar).

1.1.7 MSCC services should ensure that the first point of contact for people referred to the service is the MSCC coordinator or the designated senior clinician.

1.1.8 MSCC services should have arrangements in place to coordinate care between different specialties and services, for example by having:

- clear referral criteria and processes
- processes for information sharing
- effective channels for communication between specialties.

1.1.9 MSCC services should operate through a multidisciplinary approach, with key members from relevant specialties, including:

- haematology
- oncology
- palliative care
- physiotherapy

- radiology
- spinal surgery.

1.1.10 Specialties providing treatment within the MSCC service (for example, spinal surgery, radiotherapy and oncology treatments) should designate a single point of contact to liaise with other services, provide advice and contribute to the coordination of care.

1.1.11 MSCC services should establish links and communication pathways with primary care and other relevant services (for example, palliative care and social services) so that information about the person's care and support needs is shared effectively to ensure safe discharge from hospital, continuity of care and appropriate follow-up (see also the section on providing support and rehabilitation services).

1.1.12 MSCC services should have systems and processes in place for recording data, audit evaluation, and investigating and reporting incidents.

1.1.13 Be aware of the impact of health inequalities (for example, deprivation) on outcomes for people with spinal metastases or MSCC. Ensure that:

- information is collected and analysed by local services to identify any health inequalities
- education is provided within services on reducing local health inequalities
- reasonable adjustments are made by local services to address any health inequalities.

1.1.14 Hospital and community services should establish coordinated care pathways with each other, and with social services, to ensure that people with spinal metastases or MSCC:

- are discharged in a safe and timely manner **and**
- receive the support they need for themselves and their families and carers once home.

For a short explanation of why the committee made these recommendations and how they might affect services, see the rationale and impact section on providing a coordinated MSCC service.

Full details of the evidence and the committee's discussion are in:

- evidence review A: service configuration - investigations
- evidence review B: service configuration - management
- evidence review C: information and support.

Roles in a coordinated MSCC service

1.1.15 The MSCC coordinator should ensure that:

- key information about each person is recorded; this includes information on:
  - clinical presentation
  - neurological assessment
  - performance status
  - frailty assessment
  - investigations, including imaging reports
  - oncology assessment and disease staging
- initial triage of information about the person's care is performed
- appropriate information is shared with primary care and with the multidisciplinary team
- discharge planning is coordinated.

1.1.16 The person acting as first point of contact in the MSCC service should provide initial advice to referring healthcare professionals on:

- pain management (see the section on pain management)
- spinal stability (see the sections on imaging investigations and tools for assessing spinal stability and prognosis)
- immobilisation (see the section on immobilisation)
- the use of dexamethasone (see the section on corticosteroids)
- referral and transfer for specialist treatment.

1.1.17 A senior clinician from the multidisciplinary team with expertise in diagnosing and managing spinal metastases and MSCC should develop a personalised care plan with the person. This should take into account the person's needs and preferences, and advice from other clinicians, if relevant, such as:

- clinical oncologists
- haematologists
- medical oncologists
- pharmacists
- primary tumour site clinicians
- physiotherapists
- radiologists
- spinal surgeons
- the oncologist responsible for the person's care
- the referring health professional.

1.1.18 Centres treating spinal metastases or MSCC should ensure that a senior clinician is available at all times to give advice and support to the MSCC service.

For a short explanation of why the committee made these recommendations and how they might affect services, see the rationale and impact section on roles in a coordinated MSCC service.

Full details of the evidence and the committee's discussion are in:

- evidence review A: service configuration - investigations
- evidence review B: service configuration - management.

Providing urgent imaging and radiotherapy services

1.1.19 MSCC services should ensure that there is local access to urgent MRI scans (within 24 hours) for all people with suspected MSCC who have neurological signs and symptoms. MRI scans should be available outside normal working hours if needed to start immediate treatment (see recommendation 1.5.4).

1.1.20 Imaging departments should make provision for short-notice spinal scans, taking into account the relative urgency of scans investigating suspected spinal metastases or MSCC (see recommendations 1.5.2 and 1.5.4).

1.1.21 MSCC services should ensure that radiotherapy and simulator facilities are available for urgent (within 24 hours) daytime sessions, 7 days a week for people with MSCC (see recommendation 1.10.5).

For a short explanation of why the committee made these recommendations and how they might affect services, see the rationale and impact section on providing urgent imaging and radiotherapy services.

Full details of the evidence and the committee's discussion are in:

- evidence review A: service configuration – investigations
- evidence review M: radiotherapy.

Providing support and rehabilitation services

1.1.22 Ensure access to community-based nursing and rehabilitation services, and equipment and support to meet the needs of people with suspected or confirmed spinal metastases or MSCC, and their families and carers.

1.1.23 Ensure access for people with MSCC to appropriate specialist rehabilitation services (including to specialist rehabilitation units) if they are likely to benefit from it, based on an assessment of their circumstances, their level of function and the type of treatment they received.

1.1.24 Discharge planning should be led by a named individual from within the responsible clinical team and involve:

- the person and their family and carers, if appropriate

- the primary oncology site team
- the rehabilitation team
- a pharmacist
- community support, including primary care and specialist palliative care, if needed.

1.1.25 MSCC services should establish clear pathways of care, linking hospital and community-based healthcare and social services to ensure that equipment and support for people with MSCC returning home and their families and carers are available and coordinated.

1.1.26 MSCC and rehabilitation services should provide support and training to the families and carers of people with MSCC before discharge from hospital (see section on support and training for carers in the NICE guideline on transition between inpatient hospital settings and community or care home settings for adults with social care needs).

1.1.27 MSCC and rehabilitation services should take account of the section on discharge from hospital in the NICE guideline on transition between inpatient hospital settings and community or care home settings for adults with social care needs for hospital discharge planning.

1.1.28 MSCC and rehabilitation services should take account of the principles of rehabilitation in the NICE guidelines on rehabilitation after critical illness in adults.

For a short explanation of why the committee made these recommendations and how they might affect services, see the rationale and impact section on providing support and rehabilitation services.

Full details of the evidence and the committee's discussion are in evidence review B: service configuration – management.

1.2 Information and support

Supporting decision making

1.2.1 Ensure that people with suspected or confirmed spinal metastases or MSCC and their families and carers are given information and support so that they are fully informed and involved in all decisions about their care. Follow the principles in NICE's guidelines on shared decision making and patient experience in adult NHS services.

1.2.2 Discuss with the person and their family or carers the reasons why investigations and treatments are being offered by the multidisciplinary team, and the risks and benefits of these, so that they fully understand their options and are involved in decisions about their care.

1.2.3 Give opportunities to the person and their family or carers to discuss their concerns and ask questions about issues such as:

- their diagnosis and what it might mean for them
- initial treatment options
- risks and benefits of treatment options
- how the condition could affect them in the future, including the possibility of worsening symptoms and functional decline
- ways to manage pain
- when further treatment options could be considered.

1.2.4 Ensure that people with suspected or confirmed spinal metastases or MSCC and their families and carers know who to contact if they develop new symptoms or signs (see box 1) or if their existing symptoms worsen.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on supporting decision making.

Full details of the evidence and the committee's discussion are in evidence review C: information and support.

Providing support

1.2.5 Carry out a holistic needs assessment with the person, and their family or carers if appropriate, as soon as possible after initial diagnosis, once the person is physically and emotionally able to be involved in the assessment.

1.2.6 Give advice on how to access support based on the holistic needs assessment, including help with psychological, emotional, spiritual and financial needs.

1.2.7 Discuss with the person their needs and preferences and the support they receive, and aim to help them:

- maintain their independence and quality of life
- deal with uncertainty
- adapt to potential changes in their level of function.

1.2.8 Discuss with the person and their family or carers their experience of the service and explore whether changes can be made to better meet their needs. Ask about any concerns they may have, such as:

- accessing the service and attending appointments
- undergoing investigations
- adhering to treatment
- their social and practical circumstances
- disabilities that may be relevant to their care.

1.2.9 Offer the person opportunities to discuss advance care planning (with support from family and carers if appropriate). For principles of advance care planning, see the section on advance care planning in the NICE guideline on decision making and mental capacity and the NICE quick guide on advance care planning.

1.2.10 Offer the person end of life care, when appropriate, following NICE's guidelines on end of life care for adults and care of dying adults in the last days of life.

1.2.11 When the person is approaching the end of their life, discuss the bereavement support available with their family or carers and provide written information. Give advice on how to access bereavement support according to their wishes and preferences.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on providing support.

Full details of the evidence and the committee's discussion are in:

- evidence review A: service configuration – investigations
- evidence review C: information and support.

Support from healthcare services including discharge from hospital

1.2.12 Ensure that all people with spinal metastases or MSCC, and their families or carers if appropriate:

- have access to support and advice from the full range of healthcare services needed
- are supported by healthcare services to adapt to changes and to maintain their independence and quality of life.

1.2.13 Ensure that people with spinal metastases or MSCC and their families or carers have ongoing access to support and training on appropriate care techniques and use of equipment both in hospital and after they are discharged home. This may include:

- manual handling
- use of spinal braces
- use of equipment (such as wheelchairs)
- managing bladder and bowel problems.

For a short explanation of why the committee made these recommendations and how they might affect practice or services, see the rationale and impact section on support from healthcare services including discharge from hospital

Full details of the evidence and the committee's discussion are in evidence review C: information and support.

1.3 Recognising spinal metastases or MSCC

For information on assessing low back pain, including risk assessment and the use of risk stratification tools, see NICE's guideline on low back pain and sciatica in over 16s.

1.3.1 Think about the possibility of spinal metastases or MSCC in people with any of the factors in box 1. See recommendations 1.3.2 to 1.3.6 for people presenting with current, past or suspected cancer and symptoms or signs of spinal metastases or cord compression.

Box 1 Factors suggesting spinal metastases or MSCC

Cancer:

- Past or current diagnosis of cancer
- Suspected diagnosis of cancer (see also the NICE guideline on suspected cancer)

Pain characteristics suggesting spinal metastases:

- Severe unremitting back pain
- Progressive back pain
- Mechanical pain (aggravated by standing, sitting or moving)
- Back pain aggravated by straining (for example, coughing, sneezing or bowel movements)
- Night-time back pain disturbing sleep
- Localised tenderness
- Claudication (muscle pain or cramping in the legs when walking or exercising)

Symptoms and signs suggesting cord compression:

- Bladder or bowel dysfunction
- Gait disturbance or difficulty walking
- Limb weakness
- Neurological signs of spinal cord or cauda equina compression
- Numbness, paraesthesia or sensory loss
- Radicular pain

1.3.2 Immediately contact the MSCC coordinator if a person with a past or current diagnosis of cancer presents with the symptoms or signs of cord compression listed in box 1. Treat this as an oncological emergency.

1.3.3 Urgently contact the MSCC coordinator (within 24 hours) if a person with a past or current diagnosis of cancer presents with pain with the characteristics suggesting spinal metastases listed in box 1.

1.3.4 Discuss initial care with the MSCC coordinator, including advice on:

- immobilisation (see the section on immobilisation)
- pain management (see the section on pain management)
- imaging and assessing spinal stability (see the sections on imaging investigations and tools for assessing spinal stability and prognosis)
- use of dexamethasone (see the section on corticosteroids)
- referral and transfer for specialist treatment.

1.3.5 If a person without a past or current diagnosis of cancer has any of the pain characteristics listed in box 1 and cancer is suspected, refer them for urgent oncology assessment (see also the NICE guideline on suspected cancer).

1.3.6 For people with a past or current diagnosis of cancer with low back pain but no clinical evidence of spinal metastases or MSCC explain:

- what changes in their symptoms they should look out for (see box 1)

- that they should contact their healthcare professional urgently if their symptoms change or worsen.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on recognising spinal metastases and MSCC.

Full details of the evidence and the committee's discussion are in:

- evidence review D: recognition - spinal metastases
- evidence review E: recognition – MSCC.

1.4 Immobilisation

1.4.1 Start immobilisation without delay (including for transfer to hospital) for people with:

- suspected or confirmed MSCC **and**
- neurological symptoms or signs suggesting spinal instability (see the recommendation on tools for assessing spinal stability).

1.4.2 Consider immobilisation for people with:

- suspected or confirmed spinal metastases or MSCC **and**
- moderate to severe pain associated with movement.

1.4.3 Nurse people who are immobilised in a supine position to minimise weight bearing by the spine (lying flat or with partial elevation). If they cannot tolerate the supine position, for example, because of pain or breathlessness, try adjusting their position to reduce these symptoms.

1.4.4 Seek early advice (within 24 hours) from an expert clinician (for example, a specialist physiotherapist, oncologist or spinal surgeon) and start assessment of spinal stability to minimise the duration of immobilisation, if appropriate.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on immobilisation.

Full details of the evidence and the committee's discussion are in evidence review H: immobilisation.

1.5 Imaging investigations

Radiologist involvement

1.5.1 Radiological imaging of the spine in people with suspected spinal metastases or MSCC should be overseen by a radiologist to ensure:

- appropriate and complete imaging is performed **and**
- they report the results urgently.

MRI assessment

1.5.2 Offer an MRI scan to people with suspected MSCC (see recommendation 1.3.2) to be performed:

- as soon as possible (and always within 24 hours)
- at the local hospital or appropriate centre with direct access imaging facilities.

Transfer to a tertiary centre for MRI should only be undertaken if local MRI is not possible.

1.5.3 Offer an MRI scan to people with suspected spinal metastases but without suspicion of MSCC (see recommendation 1.3.3) to be performed:

- within 1 week
- at the local hospital.

1.5.4 Offer out-of-hours MRI only in clinical circumstances in which urgent diagnosis is needed to enable treatment to start immediately.

1.5.5 MRI of the spine should include:

- sagittal T1 and/or short T1 inversion recovery (STIR) sequences of the whole spine, to identify spinal metastases
- sagittal T2-weighted sequences, to show the level and degree of compression of the cord or cauda equina by a soft tissue mass and to assess possible MSCC and detect lesions within the cord itself
- supplementary axial imaging through any significant abnormality noted on the sagittal scan.

1.5.6 In people with an existing diagnosis of spinal metastases without symptoms or signs of cord compression, do not perform MRI of the spine solely for the early radiological detection of cord compression.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on imaging investigations (radiologist involvement and MRI assessment).

Full details of the evidence and the committee's discussion are in evidence review A: service configuration – investigations.

Other imaging techniques for diagnosis and management

1.5.7 If MRI is contraindicated, carry out a CT scan for people with suspected spinal metastases or MSCC. Rarely, if more information is needed for diagnosis and to guide management, carry out myelography after CT scanning.

1.5.8 If myelography is indicated, only perform it at a neuroscience or spinal surgical centre.

1.5.9 Do not perform plain X-ray of the spine to diagnose or rule out spinal metastases or MSCC.

1.5.10 Consider a targeted CT scan with 3-plane reconstruction for people with spinal metastases or MSCC to:

- assess spinal stability **and**
- plan vertebroplasty, kyphoplasty or spinal surgery.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on other imaging techniques for diagnosis and management.

Full details of the evidence and the committee's discussion are in:

- evidence review F: investigations – diagnosis
- evidence review G: investigations – management.

1.6 Mobilisation and assessment of spinal stability

1.6.1 If assessment, including imaging, suggests spinal stability is likely (before or after treatment), start testing this by graded sitting followed by weight bearing.

1.6.2 Monitor neurological symptoms and pain continuously during mobilisation.

1.6.3 Continue to unsupported sitting, transfers and mobilisation if, during graded sitting and weight bearing, there is:

- no evidence of orthostatic hypotension **and**
- no significant increase in pain **and**
- no deterioration in neurological symptoms.

1.6.4 If there is a significant increase in pain or neurological symptoms when the person begins graded sitting and mobilisation:

- return them to a position where these changes reverse **and**
- reassess the stability of their spine.

1.6.5 In a person with MSCC for whom surgery, radiotherapy or other oncology treatments are not appropriate, mobilisation should still be carried out if possible.

Using orthoses in mobilisation

1.6.6 Seek advice from a specialist (for example, a physiotherapist) on the use of orthoses to promote mobility and to prevent loss of range of limb movement.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on mobilisation and assessment of spinal stability.

Full details of the evidence and the committee's discussion are in evidence review H: immobilisation.

1.7 Pain management

Individualised pain assessment and management plan

1.7.1 Ensure adequate pain relief is provided promptly for people with suspected or confirmed spinal metastases or MSCC, including while the person is waiting for investigations or treatment.

1.7.2 Carry out an individualised pain assessment for people presenting with pain related to suspected or confirmed spinal metastases or MSCC. This should include assessing:

- the severity, location and characteristics of the pain
- the underlying cause of the pain and whether this has deteriorated
- the impact of pain on lifestyle, daily activities (including sleep) and participation in work, education, training or recreation.

1.7.3 Discuss and agree a pain management plan with the person based on their individualised pain assessment and taking into account any previous strategies tried, as well as their concerns and expectations. Discussions may include:

- why a particular management plan is being suggested

- the psychological impact of pain, including the effect on emotional wellbeing
- pharmacological analgesic treatment options, with individualised information and advice, including possible risks and benefits, and dosage titration
- individualised coping strategies for pain
- other treatment options, if suitable, for example:
  - physical therapy
  - immobilisation (for example, bracing)
  - psychological therapies
  - systemic anticancer treatments
  - bisphosphonates (see the section on bisphosphonates)
  - denosumab (see the section on denosumab)
  - corticosteroids (see the section on corticosteroid therapy)
  - radiotherapy (see the section on radiotherapy)
  - surgery (see the section on invasive interventions)

- when and how to seek further advice if pain persists, progresses or changes in character.

For more information about involving people in decisions and supporting adherence, see the NICE guidelines on shared decision making and medicines adherence.

1.7.4 After starting or changing a pain management plan, carry out a clinical review to assess the effectiveness of the chosen treatment.

1.7.5 Consider referring the person to a specialist pain service (or if appropriate a palliative care service) at any stage, including at initial presentation, if:

- they have severe pain **or**
- their pain significantly limits their lifestyle, daily activities (including sleep) and participation in work, education, training or recreation.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on individualised pain assessment and management plan.

Full details of the evidence and the committee's discussion are in evidence review I: analgesic interventions.

Analgesic medication

1.7.6 When deciding on analgesic medication, discuss with the person and take into account:

- the possible side effects
- the possible effects on comorbidities and comorbidities that could arise from treatment
- concurrent medications (including over-the-counter medicines) and possible drug interactions.

1.7.7 Offer non-opioid or opioid analgesic medication, individually or in combination, to people with pain associated with suspected or confirmed spinal metastases or MSCC. The choice of medicine should be based on the individualised pain assessment and agreed in the pain management plan.

1.7.8 At each review, discuss analgesic drug dosage, titration, tolerability and adverse effects, and agree to continue or update the pain management plan where necessary.

1.7.9 For people with pain that has neuropathic features or is unresponsive to opioid analgesia, consider managing pain according to the NICE guideline on neuropathic pain in adults: pharmacological management in non-specialist settings.

1.7.10 For people having strong opioids in palliative care, follow the recommendations on starting and titrating opioid analgesia and managing side effects in the NICE guideline on palliative care for adults: strong opioids for pain relief.

1.7.11 When using strong opioids, follow the processes for their safe use and management in the NICE guideline on controlled drugs.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on analgesic medication.

Full details of the evidence and the committee's discussion are in evidence review I: analgesic interventions.

Bisphosphonates

1.7.12 For people with spinal involvement from myeloma or breast cancer, offer bisphosphonates to reduce pain and the risk of vertebral fracture or collapse. **[2008]**

1.7.13 For people with spinal metastases from prostate cancer, offer bisphosphonates to reduce pain only if conventional analgesia fails to control pain. **[2008]**

1.7.14 Do not use bisphosphonates to treat spinal pain in people:

- with vertebral involvement from tumour types other than myeloma, breast cancer or prostate cancer (if conventional analgesia fails) **or**
- with the intention of preventing MSCC, except as part of a randomised controlled trial. **[2008]**

Denosumab

1.7.15 For people with bone metastases from breast cancer and from solid tumours other than prostate, follow the NICE technology appraisal guidance on denosumab for the prevention of skeletal-related events in adults with bone metastases from solid tumours.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on bisphosphonates and denosumab. No evidence review was conducted in 2023.

Full details of the evidence considered in the 2008 guideline and the committee's discussion are reported in the 2008 full guideline.

1.8 Corticosteroid therapy

1.8.1 For people with confirmed haematological malignancy with spinal metastases (with or without neurological symptoms or signs):

- Offer 16 mg of oral dexamethasone (or equivalent parenteral dose) as soon as possible.
- After the initial dose, offer further corticosteroid treatment in discussion with the haematology multidisciplinary team.

1.8.2 Seek specialist haematological advice before starting corticosteroid treatment for people presenting with radiologically suspected lymphoma or myeloma with spinal metastases without neurological symptoms or signs.

1.8.3 For people with neurological symptoms or signs of MSCC:

- Offer 16 mg of oral dexamethasone (or equivalent parenteral dose) as soon as possible.
- After the initial dose, continue 16 mg of oral dexamethasone (or equivalent parenteral dose) daily for people awaiting surgery or radiotherapy.
- After surgery or at the start of radiotherapy, reduce the dose gradually until stopped.

1.8.4 If dexamethasone is given before imaging, and spinal metastases and MSCC are subsequently ruled out, discontinue it.

1.8.5 Do not routinely offer corticosteroids as part of initial management for people with spinal metastases or MSCC who do not have neurological symptoms or signs, unless:

- it is part of a radiotherapy regimen
- the person has severe pain
- the person has a haematological malignancy (see recommendation 1.8.1).

1.8.6 For people with spinal metastases or MSCC without other effective treatment options, reduce dexamethasone gradually until stopped. Only continue dexamethasone if the person's symptoms return or worsen as dexamethasone is reduced.

1.8.7 For people taking corticosteroid treatment:

- monitor blood glucose levels **and**
- offer proton pump inhibitor acid suppression.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on corticosteroid therapy.

Full details of the evidence and the committee’s discussion are in evidence review J: corticosteroids.

1.9 Tools for assessing spinal stability and prognosis

1.9.1 Consider using a validated spinal stability scoring system with good evidence of accuracy (for example, the Spinal Instability Neoplastic Score) alongside clinical assessment of risk of spinal instability to inform treatment decisions.

1.9.2 Consider using a validated prognostic scoring system with good evidence of accuracy (for example, the revised Tokuhashi scoring system) alongside recognised prognostic factors (such as comorbidities) to inform treatment decisions.

1.9.3 Only use a scoring system as part of a full clinical assessment (including general health, pain and information from imaging) to support clinical decision making and inform discussions with the person with spinal metastases or MSCC and their family or carers.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on tools for assessing spinal stability and prognosis.

Full details of the evidence and the committee's discussion are in:

- evidence review K: prognostic tools – instability
- evidence review L: prognostic tools – overall survival.

1.10 Radiotherapy

Radiotherapy and fertility

1.10.1 When considering radiotherapy as a treatment option, explain the impact of the cancer and its treatment on future fertility. Explore the person's priorities for fertility and offer referral to a fertility specialist if suitable, but do not delay urgent treatment for spinal metastases or MSCC. See also the section on people with cancer who wish to preserve fertility in the NICE guideline on fertility problems: assessment and treatment.

For a short explanation of why the committee made this recommendation and how it might affect practice, see the rationale and impact section on radiotherapy and fertility.

Full details of the evidence and the committee's discussion are in evidence review M: radiotherapy.

Radiotherapy to treat painful spinal metastases and prevent MSCC

1.10.2 For people with spinal metastases without MSCC who have non-mechanical spinal pain:

- offer 8 Gy single fraction radiotherapy, even if they are paralysed **or**
- consider stereotactic ablative body radiotherapy for people with a good overall prognosis (see the section on assessing prognosis) or oligometastases (up to 3 discrete metastases anywhere in the body with spinal involvement).

1.10.3 Be aware that radiotherapy for haematological malignancy with spinal metastases may reduce the success of stem cell harvest. If stem cell harvest is being considered, discuss the use of radiotherapy with the relevant haematology multidisciplinary team.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on radiotherapy to treat painful spinal metastases and prevent MSCC.

Full details of the evidence and the committee’s discussion are in evidence review M: radiotherapy.

Radiotherapy to treat MSCC

1.10.4 Offer urgent radiotherapy (to be given as soon as possible and within 24 hours) to people with MSCC that is not suitable for spinal surgery, unless:

- they have had prolonged complete tetraplegia or paraplegia and their pain is well controlled **or**
- their overall prognosis is considered to be poor (see also the section on assessing prognosis).

1.10.5 Use 8 Gy single fraction radiotherapy for people with MSCC having radiotherapy unless they are at high risk of side effects.

1.10.6 Consider multiple fraction radiotherapy for people at high risk of side effects from radiation, for example, if they have:

- multilevel disease
- disease requiring a large treatment field

- had previous radiotherapy treatments.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on radiotherapy to treat MSCC.

Full details of the evidence and the committee's discussion are in evidence review M: radiotherapy.

Radiotherapy for asymptomatic spinal metastases

1.10.7 For people with asymptomatic spinal metastases, consider radiotherapy only:

- as part of a randomised controlled trial with the intention of preventing MSCC **or**
- as part of a treatment strategy for oligometastases (up to 3 discreet metastases anywhere in the body with spinal involvement) **or**
- if there are radiological signs of impending cord compression by an epidural tumour.

For a short explanation of why the committee made this recommendation and how it might affect practice, see the rationale and impact section on radiotherapy for asymptomatic spinal metastases.

Full details of the evidence and the committee's discussion are in evidence review M: radiotherapy.

Postoperative radiotherapy

1.10.8 Offer postoperative radiotherapy after the person has recovered from surgery for spinal metastases or MSCC. For information on surgery, see the section on surgical interventions.

Further radiotherapy treatment

1.10.9 Consider further radiotherapy for people with spinal metastases or MSCC who have:

- had a good response to previous radiotherapy **and**
- developed recurrent symptoms at least 3 months after initial radiotherapy.

1.10.10 If further radiotherapy is being considered, discuss the possible benefits and risks with the person and take into account the following factors before agreeing a treatment plan:

- total biological equivalent dose
- the time since the previous treatment
- volume of tissue to be irradiated.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on postoperative radiotherapy and further radiotherapy treatment.

Full details of the evidence and the committee's discussion are in evidence review M: radiotherapy.

1.11 Invasive interventions

Timing of invasive interventions

1.11.1 Before an invasive intervention is offered, make a treatment plan in discussion with the appropriate specialists (such as an oncologist and spinal surgeon) within the MSCC service multidisciplinary team.

1.11.2 If the primary cancer has not been identified, carry out a radiologically guided biopsy if:

- identifying the primary cancer may affect treatment decisions **and**
- there is no need for immediate treatment.

1.11.3 Offer surgical intervention intended to halt or reverse neurological decline as soon as possible after the onset of neurological symptoms or signs indicating MSCC.

1.11.4 Take into account the speed of onset and rate of progression of neurological symptoms and signs when determining the urgency of surgical intervention.

1.11.5 Do not use a time limit after complete paralysis to decide whether to offer surgical intervention to restore neurological function.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on timing of invasive interventions.

Full details of the evidence and the committee's discussion are in evidence review N: invasive interventions.

Options for invasive interventions

The following NICE interventional procedure guidance are in development and are due to be published in April 2023:

- radiofrequency ablation for palliation of painful spinal metastases
- radiofrequency ablation as an adjunct to balloon kyphoplasty or percutaneous vertebroplasty for palliation of painful spinal metastases.

Reference to these will be considered for inclusion in the final version of this guideline if appropriate.

Interventions to treat spinal metastases without MSCC

1.11.6 For people with spinal metastases without MSCC who have suspected or confirmed spinal instability, or pain not controlled by analgesia, consider the following options:

- vertebroplasty or kyphoplasty (see also NICE interventional procedures guidance on percutaneous vertebroplasty and balloon kyphoplasty for vertebral compression fractures)
- surgical stabilisation of the spine
- spinal surgery to prevent MSCC.

Interventions to treat spinal metastases with MSCC

1.11.7 For people with spinal metastases with MSCC, consider the following options:

- surgical decompression of the spinal cord
- surgical stabilisation of the spine.

1.11.8 Offer spinal stabilisation surgery, even if there is a severe neurological deficit that may be irreversible, if a person with MSCC:

- has suspected or confirmed spinal instability with mechanical pain that is not controlled by analgesia **and**
- is able to have surgery and it is suitable for them.

1.11.9 Offer external spinal support (for example, a halo vest or cervico-thoraco-lumbar orthosis) if a person with MSCC:

- has suspected or confirmed spinal instability with mechanical pain that is not controlled by analgesia **and**
- surgery is not suitable for them.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on options for invasive interventions.

Full details of the evidence and the committee's discussion are in evidence review N: invasive interventions.

1.12 Rehabilitation and supportive care

See also the recommendations on providing support and support from healthcare services in the section on information and support and on providing coordinated support and rehabilitation services in the section on organising and delivering services.

1.12.1 From diagnosis onwards, offer people with spinal metastases or MSCC support and rehabilitation from healthcare professionals, based on ongoing review of their management plan and holistic needs.

1.12.2 Focus rehabilitation on the person's priorities and goals as outlined in the section on setting rehabilitation goals in the NICE guideline on rehabilitation after traumatic injury. These could include:

- improving functional independence
- participation in activities of daily life
- improving quality of life.

1.12.3 Start planning for discharge and ongoing care, including rehabilitation, on admission to hospital.

1.12.4 Offer specialist rehabilitation (including admission to a specialist rehabilitation unit if appropriate) to people with MSCC who are likely to benefit from it, based on an assessment of their circumstances, level of function and the type of treatment they received.

1.12.5 Offer supportive care to prevent and manage complications both during hospital stays and after discharge. If relevant, follow the NICE guidance on:

- venous thromboembolism in over 16s (see the section on interventions for people having elective spinal surgery or cranial surgery or people with spinal injury)
- prevention and management of pressure ulcers
- urinary incontinence due to neurological conditions

- faecal incontinence in adults (see the section on people with neurological or spinal disease/injury).

See also the clinical recommendations in the rehabilitation after spinal cord injury section in the NICE guideline on rehabilitation after traumatic injury.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on rehabilitation and supportive care.

Full details of the evidence and the committee's discussion are in evidence review B: service configuration - management.

Terms used in this guideline

This section defines terms that have been used in a particular way for this guideline. For other definitions see the NICE glossary and the Think Local, Act Personal Care and Support Jargon Buster.

Cancer alliance

Cancer alliances bring together clinical and managerial leaders from different hospital trusts and other health and social care organisations, to transform the diagnosis, treatment and care for cancer patients in their local area. These partnerships enable care to be more effectively planned across local cancer pathways. For more information, see NHS England Cancer Alliances – improving care locally.

Direct malignant infiltration of the spine

Cancer that has spread beyond the layer of tissue in which it developed and is growing into the spinal column.

Holistic needs assessment

An assessment that considers all aspects of a person's wellbeing, their spiritual and health and social care needs. Undertaking a holistic needs assessment ensures that the person's concerns and problems are identified so that support can be provided to address them.

Recommendations for research

The guideline committee has made the following recommendations for research.

Key recommendations for research

1 Radiotherapy

How effective is postoperative stereotactic ablative radiotherapy compared with postoperative standard radiotherapy in the treatment of metastatic spinal cord compression (MSCC)?

For a short explanation of why the committee made this recommendation for research, see the rationale section on radiotherapy to treat MSCC.

Full details of the evidence and the committee's discussion are in evidence review M: radiotherapy.

2 Immobilisation

What are the effective forms of immobilisation for people with MSCC?

For a short explanation of why the committee made this recommendation for research, see the rationale section on immobilisation.

Full details of the evidence and the committee's discussion are in evidence review H: immobilisation.

3 Mobilisation and assessment of spinal stability

What are the effective forms of remobilisation for people with MSCC?

For a short explanation of why the committee made this recommendation for research, see the rationale section on mobilisation and assessment of spinal stability.

Full details of the evidence and the committee's discussion are in evidence review H: immobilisation.

4 Surgery to prevent MSCC

What is the effectiveness of surgery in the prevention of MSCC for people with spinal metastases without pain or instability?

For a short explanation of why the committee made this recommendation for research, see the rationale section on options for invasive interventions.

Full details of the evidence and the committee's discussion are in evidence review N: invasive interventions.

Rationale and impact

These sections briefly explain why the committee made the recommendations and how they might affect practice and services.

Organising and delivering services

Cancer alliances

Recommendations 1.1.1 to 1.1.4

Why the committee made the recommendations

There was conflicting evidence about implementing clinical care pathways, with 1 study suggesting that care pathways improved outcomes, whereas another suggested they had no clear benefit. Based on their experience, the committee felt a structured, standardised approach to implementing care pathways could still help ensure healthcare professionals understand processes and provide people with better access to services. Therefore, they recommended that every cancer alliance should set up a clear care pathway for spinal metastases and metastatic spinal cord compression (MSCC).

The committee also noted that within cancer alliances (or equivalent local partnerships), services, such as diagnostic services to investigate suspected cord compression, need to be available at short notice so that the whole care pathway can be implemented effectively. Services also need to be monitored to ensure they meet people's needs and the standards set (such as the timing for MRI assessments).

Based on their experience and expertise, the committee agreed that within cancer alliances, professionals from all care settings, including representatives from the MSCC service and relevant specialties (for instance, alliance groups for primary tumours), need to work together and involve people with lived experience to implement care pathways effectively and ensure they meet people's needs. Good organisational and clinical leadership, with clearly defined responsibilities, will help ensure services are overseen effectively and are accountable.

How the recommendations might affect services

The recommendations for cancer alliances will help reinforce and standardise current service organisation and oversight.

Return to recommendations

Providing a coordinated MSCC service

Recommendations 1.1.5 to 1.1.14

Why the committee made the recommendations

The committee discussed the evidence on service configuration and the recommendations in the previous guideline, and took into account how practice and services have evolved since the previous guideline published. They also considered a new analysis conducted for this guideline of an audit of all people referred to an MSCC service between January 2018 until end of May 2022 in the UK Clatterbridge Cancer Centre (covering a population of 2.4 million people across Cheshire, Merseyside, and the surrounding areas).

Based on the previous guideline, the committee reinforced the importance of having dedicated MSCC services in place so that people with spinal metastases or MSCC can be referred and get the coordinated care that they need.

There was new published evidence from a UK-based audit, which coincidentally included evidence from before and after publication of the previous NICE guideline. The previous NICE guideline recommended significant changes to services, paving the way for designated MSCC services and defining the role of the MSCC coordinator. None of the outcomes from the audit related specifically to the role of the MSCC coordinator but the evidence showed there had been some improvement in access to services. The committee agreed that this improvement was most likely due to better coordination of MSCC services and that introducing the MSCC coordinator role had led to better outcomes. This was also consistent with the analysis of the Clatterbridge Cancer Centre audit data, which showed improvements in how long patients lived associated with services that included the MSCC coordinator role. In the Clatterbridge Cancer Centre, staff members were ‘upskilled’ to carry out this role so that there were multiple MSCC coordinators, and this led to better outcomes.

The committee agreed that having an MSCC coordinator (or a designated person available as the first point of contact) would make referral processes easier and faster. They also noted that, because MSCC is an oncological emergency, cover is needed 24 hours a day, 7 days a week for planning urgent referral, investigations and treatment. They noted that the MSCC coordinator role is a clinical rather than a clerical role and that this would require out-of-hours arrangements whereby a senior clinician would take on this role when the MSCC coordinator is not working (for example, an on-call oncology registrar). Having the MSCC coordinator or the designated senior clinician as a first point of contact also makes the patient pathway more efficient because initial decisions can be made promptly. They noted that coordination of care works best and is most efficient when the initial contact is made through oncology services, ensuring direct access to this specialty, which could speed up triage and planning.

The committee discussed that services may be spread across a number of departments and may not always be co-located, and that there are other services that they also need to be in contact with. They noted that without coordination, care can become disjointed. To remedy this, they recommended that arrangements should be in place to ensure that services are well coordinated.

Based on experience, the committee noted that all MSCC services need to have access to different specialties and would therefore need to operate using a multidisciplinary approach to support decision making and planning of care with individual designated points of contacts for each of these (for example, by having a specific phone number for MSCC referrals in relevant specialties).

It was acknowledged that specialist services, such as MSCC services, do not always link up and share information effectively with secondary, community and primary care, which can be detrimental to people's follow-up after discharge from hospital. To address this, they agreed that MSCC services should establish links with relevant services to ensure continuity of care.

The committee noted that there is variability in data recording. They agreed that MSCC services should be recording their own data and carrying out audit to support service improvements, which may lead to more effective referral and treatment and improve outcomes.

Based on information related to deprivation in the Clatterbridge Cancer Centre audit data and on the NICE equality impact assessment conducted during scoping of the guideline, the committee discussed related health inequalities, for example, in cancer incidence and mortality in deprived areas, and access to services in more remote geographical locations. The committee agreed that awareness needs to be raised and that the specific health inequalities in a local service may also not always be known, so information should be collected to identify these. This information should then be communicated so that local inequalities can be reduced, where possible, and reasonable adjustments made.

The evidence indicated that continuity of support is potentially at risk when people are discharged from hospital to home. The committee agreed that coordinated care pathways between hospital and community care, and also with social services, can help ensure people can access support after discharge to maintain their independence and quality of life, support self-management and improve their confidence.

How the recommendations might affect services

The committee discussed that the previous guideline set standards for MSCC services but that there is still some variation where this may not have been fully implemented. The committee acknowledged that in areas where this service is not already in place there will be some upfront costs from setting these up (for example setting up referral systems and establishing a multidisciplinary approach). They discussed the evidence from the analysis of the audit which showed that costs decreased per person since the creation of the service and noted that these costs should be regained over the first few years of a newly set up service. They also noted that the implementation of the MSCC service has evolved since the previous guideline and that basing it within the oncology service will make it more efficient. They will help reinforce and standardise current practice in places where the previous guideline has not been implemented and improve coordination of the person's pathway through services.

Return to recommendations

Roles in a coordinated MSCC service

Recommendations 1.1.15 to 1.1.18

Why the committee made the recommendations

Based on experience, the committee agreed that services can only run smoothly when roles and responsibilities are clearly defined and they therefore listed some of the key tasks that the MSCC coordinator or a senior clinician would be responsible for, the advice that the MSCC service should be able to provide (which could be service related or clinical advice) as well as the tasks that a senior clinician would be expected to be involved in. The committee noted that the MSCC coordinator would have sufficient medical knowledge to give initial advice on topics that are needed in emergencies (for example, pain management and immobilisation). A senior clinician with expertise in diagnosing and managing spinal metastases would then be responsible for developing a personalised care plan, which would require more detailed clinical knowledge and advice from clinicians from relevant specialties. It was also acknowledged that medical emergencies such as MSCC require a senior clinician to be available to give advice at all times to ensure patient safety.

How the recommendations might affect services

The committee discussed that the previous guideline set standards for roles within the MSCC service, but that there could still be some small variation where this may not have been fully implemented. The new recommendations will not significantly change practice for MSCC services, or the roles and responsibilities of MSCC coordinators and senior clinicians, but they will help reinforce and standardise current practice and make coordination of the services more efficient.

Return to recommendations

Providing urgent imaging and radiotherapy services

Recommendations 1.1.19 to 1.1.21

Why the committee made the recommendations

The committee discussed the evidence related to service configuration, taking into account the recommendations from the previous guideline. The most relevant evidence came from a UK-based audit, which compared outcomes for patients with MSCC in 2012 and in 2018 (data published before and after the previous NICE guideline). It showed there were better outcomes for people in 2018 compared to 2012 when they:

- had MRI within 24 hours of referral for radiotherapy so that results could be urgently reviewed and discussed with the relevant clinician or
- had radiotherapy within 24 hours of referral for this treatment.

The committee found there were uncertainties around this evidence but the reported improvements were consistent with their experience, particularly the evidence around urgent MRI assessments and radiotherapy. They recommended that services are organised to enable access to MRI and radiotherapy services within 24 hours for people with suspected or confirmed MSCC. Based on experience, the committee also agreed that sometimes immediate treatment is needed, and so MRI services should be accessible out of hours when needed. The committee discussed how this could be implemented, for example by using protected, dedicated appointments or rescheduling elective scans.

How the recommendations might affect services

The recommendations about service organisation to enable urgent MRI assessment and radiotherapy treatment will reinforce current practice.

Return to recommendations

Providing support and rehabilitation services

Recommendations 1.1.22 to 1.1.28

Why the committee made the recommendations

There was no evidence identified on service configuration for management and early rehabilitation. The committee reviewed the recommendations from the previous guideline and agreed that the standards it set for practice and care should be reinforced and updated to better reflect current best practice.

Drawing on their experience and the recommendations in the previous guideline, the committee recognised that people with MSCC may have social care needs and that services need to work together (for example, community-based nursing liaising with rehabilitation services) to ensure the right services, equipment and support is available in the community after transition from hospital to home.

For some people, specialist rehabilitation is needed. This can be given in different settings, for instance in the community or in hospital. The previous guideline focused solely on admission to specialist rehabilitation units. Although the committee did not want to rule out this option, they decided to broaden the recommendation to all types of specialist rehabilitation because admission to such units is not always necessary. They agreed that decisions about admission to a specialist rehabilitation unit would depend on the person’s circumstances, level of function, treatment and likelihood to benefit from this. They decided that they could not be prescriptive about who would most likely benefit from this, because it would depend on many different clinical and social factors, and noted that it should be left to clinical judgement.

The committee agreed that discharge planning should include discussing the person's needs and preferences as their care evolves, and involve people important to the person and the relevant specialists. They noted that efficient planning and smooth transition to care at home needs to be coordinated and that this is best achieved by having a named individual to lead on this so that the relevant contacts can be made.

When people return home, the committee acknowledged that they would need support and equipment and that this would need to happen in a coordinated and timely way. They decided that services need to link up and liaise with each other in order to achieve better coordination of support for rehabilitation in the community. The committee also highlighted the importance of support and training for families and carers before discharge to ensure that they are prepared and able to support the person when they return home.

How the recommendations might affect services

The committee agreed that these recommendations reinforce the messages from the previous guideline but that there could still be small variations in practice. The recommendations aim to support full implementation.

Return to recommendations

Information and support

Supporting decision making

Recommendations 1.2.1 to 1.2.4

Why the committee made the recommendations

The committee used qualitative evidence, as well as recommendations from the previous guideline and their expertise and experience, to make the recommendations.

The evidence showed that people with suspected or confirmed spinal metastases or MSCC can find it difficult to take in and understand information about their condition and care options, and feel less involved in their care as a result. They can feel overloaded with large amounts of technical information (especially about prognosis and treatment). The committee made recommendations to improve communication with people with spinal metastases or MSCC and their families and carers so they can be fully involved in decisions about care and support.

Evidence showed that people did not always know who to contact for information and support. The committee also acknowledged that the symptoms of spinal metastases can progress, for example, from back pain to neurological symptoms, such as numbness. In such cases, immediate treatment may be needed to avoid neurological impairment. Telling a person and their families and carers who to contact if their symptoms worsen can minimise treatment delays and ultimately may preserve neurological function. Providing contact information can also build trust between the person, their families and carers, and healthcare professionals.

How the recommendations might affect practice

Having discussions about investigations and treatments, and giving opportunities to raise concerns, is not a change in clinical practice. The recommendations clarify the potential content of such conversations in order to standardise practice.

Return to recommendations

Providing support

Recommendations 1.2.5 to 1.2.11

Why the committee made the recommendations

The committee used qualitative evidence, as well as recommendations from the previous guideline and their expertise and experience, to make the recommendations.

The evidence showed that people with spinal metastases or MSCC often feel anxious, helpless and in need of emotional support. The committee discussed that it is good practice to carry out a holistic needs assessment to pinpoint the specific needs of each person. This could reduce feelings of anxiety and helplessness, and help the person to feel involved and supported. This assessment should take account of the persons needs and preferences (which can be psychological, emotional, spiritual or financial) as well as any other factors that may affect their care, and will ensure tailored care and support that will lead to better outcomes.

They noted that there is variation in when holistic needs assessment is carried out, and it often happens at the start of rehabilitation. However, the committee agreed that having this assessment at the earliest possible time would be beneficial, allowing the person's needs and preferences to be taken into account when treatment options are being discussed.

The evidence indicated that people with spinal metastases or MSCC and their families and carers often felt distressed and their emotional needs could change at different points in their care. This could include feeling worried by uncertainty during diagnosis and investigation, or feeling distressed because of pain or changes to their physical function. The committee therefore agreed that people should be advised on how to access support for their psychological, emotional, spiritual and financial needs. The evidence also showed that people wanted more information and support relevant to their circumstances and needs at appropriate times. By encouraging the person to discuss their support needs, healthcare professionals can make sure these are addressed.

The committee discussed the inequalities identified in NICE's equality impact assessment and an analysis of deprivation data from the Clatterbridge Cancer Centre audit. It was noted that many inequalities are public health issues that are not easily resolved by individual healthcare professionals or services. However, they agreed that more feedback should be sought from people about their experience with services so that improvements can be made where necessary and reasonable adjustments can be made so that everyone's needs are met.

There was evidence that people with MSCC wanted information, support and the chance to talk about and plan for the end of life. The committee acknowledged the empowering impact of advance care planning (not restricted to end-of-life care) but also noted that many people with MSCC have a life-limiting condition and advance care planning gives them a way to express their preferences for how they should be cared for in the final months of life. Evidence also showed that their families and carers needed bereavement support, when appropriate, to help them cope with their feelings of sadness and loss.

How the recommendations might affect practice

The use of holistic needs assessments has become common practice since the previous guideline. They are widely used in current practice to ensure person-centred care, and the new recommendations will reinforce this. Advising how to access and, when possible, providing emotional support to people and their families is current practice and the recommendations clarify how and when this could be done to standardise practice. Seeking feedback and discussing people’s experience with services is not universally done but the committee felt that it could make people feel included and taken seriously and could help improve services. Based on evidence of what support and information people valued, it also makes practice more directly applicable to people’s needs.

Return to recommendations

Support from healthcare services including discharge from hospital

Recommendations 1.2.12 and 1.2.13

Why the committee made the recommendations

The committee used qualitative evidence, as well as recommendations from the previous guideline and their expertise and experience, to make the recommendations.

The evidence showed that people with spinal metastases or MSCC often have ongoing needs as they adapt to life changes and disability, such as reduced mobility. By providing them, and their families and carers, with access to support services for advice, assessment and rehabilitation, they should have the support and help they need to maintain their independence for as long as possible. The committee noted that support and training for families and carers can be variable and highlighted the importance of practical support and training. They identified some of the types of care and equipment that people may need help with to manage at home.

How the recommendations might affect practice

The evidence showed that some people felt that not all of their needs are met when they are discharged from hospital, implying that practice is variable. Therefore, the recommendations will standardise care to improve this.

Return to recommendations

Recognising spinal metastases and MSCC

Recommendations 1.3.1 to 1.3.6

Why the committee made the recommendations

Back pain is a common early symptom of spinal metastases and MSCC. The committee were aware of tools that are used for risk assessment in people presenting with low back pain in current practice so they cross referred to recommendations in the NICE guideline on low back pain and sciatica in over 16s.

Early identification is important to enable early treatment and prevent disease progressing. Evidence was reviewed on symptoms and signs that may support early recognition. This included evidence that compared symptoms in people with metastatic spinal disease with symptoms in people with low back pain due to other causes, and evidence of symptoms of spinal metastases in people presenting with undiagnosed cancer.

The evidence showed that a past or current diagnosis of cancer was a strong indicator that back pain could be a symptom of metastatic spinal disease. Other symptoms that the evidence highlighted related to characteristics of pain and neurological signs and symptoms. The committee used this evidence and their experience to list factors suggesting possible spinal metastases or MSCC that should alert a healthcare professional to think of these conditions and enable early recognition.

The committee agreed that a past or current diagnosis of cancer and any of the neurological symptoms or signs listed should be considered a medical emergency requiring immediate action to prevent vertebral collapse. They agreed that this should involve an immediate discussion with the MSCC coordinator to organise emergency care.

For people with a past or current diagnosis of cancer who present with pain that has characteristics suggesting spinal metastases, the committee agreed that urgent action (within 24 hours) should be taken to ensure that the correct investigations are undertaken promptly. They agreed that this should involve a discussion with the MSCC coordinator to organise their ongoing care.

The committee noted that once the condition is suspected, prompt action is needed to prevent progression. They therefore highlighted the areas of advice that may need to be discussed initially with the MSCC coordinator, and cross referenced the relevant sections within the guideline.

The committee discussed that sometimes people who do not have a prior diagnosis of cancer report symptoms and pain characteristics consistent with those listed in box 1 that raise suspicions of cancer, and took into account the NICE guideline on suspected cancer. They decided that in these cases it is important to urgently refer to oncology services so that cancer is not missed.

Based on their experience and expertise, the committee agreed that information should be provided to people with a past or current diagnosis of cancer who have back pain without evidence of spinal metastases or MSCC to ensure that they are alert to the risks and know what symptoms to look out for and when to contact their healthcare professional without delay.

How the recommendations might affect practice

In practice, it is hard to distinguish back pain due to other causes from potential spinal metastases. This has resulted in variation in practice. The committee provided the list of pain characteristics to raise awareness and improve recognition so that actions are taken without delay to prevent serious consequences.

Return to recommendations

Immobilisation

Recommendations 1.4.1 to 1.4.4

Why the committee made the recommendations

No evidence was identified on immobilisation, so the committee reviewed the recommendations from the previous guideline and used their expertise and experience to update them.

The committee agreed that people who present with neurological signs and symptoms of spinal instability must be immobilised immediately because of the risk of collapse of the spine. They also agreed that people with pain associated with movement may be at risk of spinal instability (see the section on tools for assessing spinal stability) and should also be considered for immobilisation based on clinical assessment of their symptoms.

The committee were concerned that currently some people are immobilised for longer than necessary, lying in a flat position, which has a detrimental impact on their physical and mental wellbeing. The committee discussed that care of the spine needs to be balanced with the needs of the patient and the risk of complications from prolonged bedrest. They agreed that immobilisation could involve lying in a supine position either flat or with partial elevation depending on the person's comfort and preferences. The committee also discussed that for some people, lying supine can be painful or affect their breathing. It was highlighted that the person's position might have to be adjusted to relieve symptoms and improve comfort without risking weight bearing onto the spine.

To avoid people being immobilised for too long, the committee recommended that expert advice on spinal stability should be sought within 24 hours and assessment should be started (see the section on MRI assessment) to determine how long immobilisation may be necessary. The committee gave some examples of who to seek advice from, but noted that they cannot be prescriptive about this because it would depend on the person's individual condition and treatment plan.

Given the lack of evidence and the impact that immobilisation has on a person’s quality of life, the committee made a recommendation for research to investigate different forms of immobilisation.

How the recommendations might affect practice

Immediate immobilisation to prevent the spine from collapsing is current practice for people with MSCC. However, this usually involves lying flat. The change to partial elevation could have a positive impact on the person’s quality of life. The committee expressed concerns that some people are immobilised for too long, so the recommendation on minimising the duration of immobilisation will standardise good current practice.

Return to recommendations

Imaging investigations (radiologist involvement and MRI assessment)

Recommendations 1.5.1 to 1.5.6

Why the committee made the recommendations

There was a large evidence base that the committee considered for radiological imaging techniques for the diagnosis of spinal metastases or MSCC. The committee based recommendations on this evidence as well as on their expertise and knowledge.

Radiologist involvement

The committee acknowledged that carrying out radiological imagining of the spine and interpreting the results is complex (for example, selecting the correct sequencing and, if necessary, supplementary axial imaging), and that the impact of errors may have very serious consequences. The committee also thought that there is variation in how urgently results are reported, which can affect starting timely treatment. The committee agreed that imaging should be overseen by a radiologist. The radiologist would not necessarily need to be present for the scans but could virtually oversee imaging and ensure prompt and accurate reporting.

MRI imaging

The committee discussed the evidence related to service configuration that showed that prompt action (within 24 hours) in relation to MRI investigations for MSCC leads to better outcomes. Given that MSCC is an oncological emergency and can lead to collapse of the spine, they reinforced the message from the last guideline that an MRI scan as soon as possible (and always within 24 hours) is necessary.

The committee noted that delays can sometimes occur due to unnecessary transfer to specialist centres for MRI scans. Such transfers can also be difficult if the person has to be immobilised. To prevent this, the committee recommended that MRI should be performed at the local hospital or at an appropriate centre with direct access imaging facilities.

The committee noted that timely MRI assessment is also needed for people with suspected spinal metastases so that a treatment plan can be started promptly. They agreed that this should be done within a week.

The committee noted that MRI scans performed within 24 hours or within 1 week should not need to be performed by out-of-hours services, and that out-of-hours services are difficult to staff and have additional running costs. They therefore recommended that out-of-hours MRI scans are only done in exceptional circumstances when treatment needs to be started immediately.

There was a body of evidence to support the use of MRI in the differential diagnosis of malignant and non-malignant vertebral bone marrow lesions. There was also evidence that T1-weighted sagittal MRI images alone had relatively low sensitivity for spinal cord compression. Based on this evidence, the committee agreed that both sagittal T1 and T2 sequencing should be performed to confirm or exclude spinal metastases and show the level and degree of compression. Based on experience, they also noted that this should usually include axial imaging if an abnormality is found, to create a 3-dimensional view of tissues so that the metastases can be clearly located.

How the recommendations might affect practice

The recommendations on MRI assessment will reinforce current good practice and standardise imaging. There is variation in where the MRI is performed and the recommendation that this is done at the local hospital, if possible, will prevent unnecessary transfers and save time. Cost, availability and timing of MRI were discussed, but because of the nature of the condition and the need for urgent treatment to prevent major loss of function, the committee agreed that cost and urgency are justified.

Return to recommendations

Other imaging techniques for diagnosis and management

Recommendations 1.5.7 to 1.5.10

Why the committee made the recommendations

There was a large evidence base that the committee considered for radiological imaging techniques for the diagnosis of spinal metastases or MSCC. The committee based recommendations on this evidence as well as on their expertise and knowledge.

The committee acknowledged that there are people who cannot have an MRI scan, for example, those with an aneurysm clip in their brain or any other metal part in their body. They discussed that usually a CT scan would be sufficient to assess the spine and plan treatment for these people. They agreed that myelography could also be an option, but it would result in a delay and carry additional risks. It is an invasive procedure, which should be carried out at a neuroscience or spinal surgical centre because it needs technical expertise and because of the risk of deterioration needing urgent decompression. Therefore, the committee highlighted that myelography should only be carried out if necessary (for example, if clearer information is needed about soft tissue) following a CT scan.

There was evidence that plain X-rays plus neurological assessment had a very low sensitivity for diagnosing spinal cord compression. It was shown that more than half of radiotherapy plans based on plain X-rays with neurological assessment were changed when information from MRI became available. The committee therefore agreed that plain X-rays should not be used for diagnosis.

Evidence from a randomised trial indicated that carrying out screening spinal MRIs for people at high risk of MSCC had no clinically important impact on overall survival, neurological and functional status, pain or quality of life. Based on this, the committee agreed that MRI should not be performed for the early detection of cord compression in people with diagnosed spinal metastases who are asymptomatic for cord compression.

There was no evidence related to radiological imaging techniques to help plan the management. The committee drew on the research identified for radiological imaging techniques in diagnosis as well as on their experience and expertise. They agreed that CT scans should be considered to assess spinal stability but also to plan vertebroplasty, kyphoplasty or spinal surgery because, based on their expertise, they noted that it can provide a more precise tumour location, which is needed when planning surgery to avoid making large or multiple incisions to find and remove a tumour.

How the recommendations might affect practice

The committee noted that the recommendations are consistent with current practice and will standardise imaging. The committee discussed whether CT scans could be used alone instead of CT and MRI scanning but the committee agreed that both may be needed for diagnosis and management to ensure the accurate inspection of soft and bony tissue, and to clearly locate the tumour site.

Return to recommendations

Mobilisation and assessment of spinal stability

Recommendations 1.6.1 to 1.6.6

Why the committee made the recommendations

No evidence was identified on mobilisation, so the committee reviewed the recommendations from the previous guideline and used their expertise and experience to update them.

If investigations, imaging or clinical assessment indicate that there is likely spinal stability, mobility should be gradually increased so that the person can better engage with their environment and the people around them. To ensure people are thinking about mobilising straight away, and not only following radiotherapy or systemic treatment, they added that mobilisation could start regardless of whether the person has received treatment or not. The committee noted that healthcare professionals need to check the person's blood pressure for orthostatic hypotension and monitor symptoms, such as pain or neurological symptoms continuously. If there is a significant deterioration in the person's symptoms, they may have to return to a more tolerable position. The committee discussed that a significant increase in symptoms may indicate spinal instability and agreed that reassessment should be carried out.

There are some people for whom treatment may not be appropriate or possible, and it is sometimes assumed that they do not need mobilisation or that it is unsafe. The committee agreed that mobilisation should still be carried out, if possible, to improve the person's quality of life, independence, and interactions with others and their environment.

Based on experience, the committee discussed that some people may benefit from the use of orthoses to promote mobilisation. There was no evidence identified for this, so the committee suggested that specialist advice should be sought if orthoses are considered as an option. The committee did not want to be prescriptive about which specialist would give this advice because this would depend on the person and their condition.

Given that no evidence was identified in this area, and that appropriate and timely mobilisation can have a big impact on the person’s quality of life, the committee made a research recommendation to investigate different forms of remobilisation.

How the recommendations might affect practice

The committee agreed that these recommendations reinforce and standardise current practice.

Return to recommendations

Individualised pain assessment and management plan

Recommendations 1.7.1 to 1.7.5

Why the committee made the recommendations

Based on their experience, the committee discussed that pain is often the reason why people seek help, both before and after diagnosis. Immediate action is often needed to coordinate and start investigations and treatment, but the person's pain should not be overlooked and needs to be managed promptly too. To prevent delays to pain management, the committee agreed that adequate and timely pain relief should be provided.

The committee noted that an assessment of all aspects related to a person’s pain is needed for effective pain management. They agreed that this would involve a detailed discussion with the person about issues such as the characteristics of the pain and how it affects them in their daily life. The committee highlighted that in current practice such assessments are not always individualised, for example, focusing on pain scales, and do not take into account the personal experience of pain, which can mean that people do not feel listened to.

To further strengthen the person-centred approach to pain management, the committee decided that people should have opportunities to discuss their pain management options, what they have tried previously, what they expect from the treatment and raise concerns. Such discussions would allow a shared decision to be made to agree the most acceptable and effective options with the person. The committee listed issues that would be most relevant for this population.

The committee agreed that it is important to assess regularly whether the treatment adequately relieves pain, so they recommended that it should be reviewed after starting and changing treatment. Based on experience, the committee discussed that some people would benefit from specialist pain management services, depending on their pain assessment and the impact the pain has on their life, and agreed that a referral could be made.

How the recommendations might affect practice

The committee noted that there is variation how pain assessment is carried out and what is discussed with the person. They also discussed that the recommendation related to referral to a specialist pain service may increase demand and increase costs. It was agreed that this was justified because it will improve outcomes for those who have severe pain or pain that significantly affects their activities. The recommendations will standardise assessment and ensure that people are listened to and understood so that they can get the most appropriate pain treatment.

Return to recommendations

Analgesic medication

Recommendations 1.7.6 to 1.7.11

Why the committee made the recommendations

The evidence on pain management was limited, consisting of 3 randomised controlled trials, the largest of which included 60 people with stable spinal metastases. The committee acknowledged that there was not enough evidence for them to make recommendations based on these studies alone, so they drew on their knowledge of the WHO guidelines for the pharmacological and radiotherapeutic management of cancer pain in adults and adolescents (2018), as well as related NICE guidelines. They also discussed their own experience and reviewed the recommendation from the previous guideline.

The committee agreed that the adverse effects of analgesic medication can affect quality of life and adherence to treatment, and that the risks are not always fully discussed. They highlighted the importance of these discussions to ensure that people understand the possible risks and benefits of different treatment options and are supported to make decisions about their treatment.

Since the previous NICE guideline, the advice from WHO has changed and they are no longer using the ‘3-step pain ladder’ previously recommended. The committee agreed that the new recommendations should be in line with the current WHO guidance, which recommends analgesic treatment with non-opiate medicines (for example, paracetamol or non-steroidal anti-inflammatory drugs) and opiate medication as options for initial treatment. The choice of medicine, used individually or in combination, is dependent on the individualised pain assessment and severity of pain, and agreed with the person in their pain management plan. The committee noted that this is consistent with their experience and reflects current practice.

The committee also discussed that people's responses to pain treatment vary and that it is important not to leave people on a treatment that may not be working or may require a different dosage to achieve effective pain relief. To avoid inadequate pain relief, they recommended that dosage, titration and tolerability are discussed at each review and the management plan updated if necessary.

The committee discussed the use of medicines for neuropathic pain and, based on their knowledge and experience, decided that they could be given if the pain has neuropathic features or opioid analgesia has been ineffective. There was no direct evidence for this identified for people with MSCC so they decided that this should be prescribed in line with recommendations in the NICE guideline on neuropathic pain in adults: pharmacological management in non-specialist settings.

Palliative pain relief for people having strong opioids in palliative care and the safe use of controlled drugs were also discussed as critical issues in cancer pain relief but the committee were aware of other guidelines that are dedicated to these topics and signposted to the NICE guideline on palliative care for adults: strong opioids for pain relief and the NICE guideline on controlled drugs.

How the recommendations might affect practice

The recommendations reinforce good current practice and support implementation of national and international guidance on pain management.

Return to recommendations

Bisphosphonates and denosumab

Recommendations 1.7.12 to 1.7.15

Why the committee made the recommendations

Bisphosphonates

The recommendations on bisphosphonate treatment in the 2008 guideline were retained and the evidence for this will be reviewed in a later update to take into account upcoming patent changes. The committee agreed that the recommendations are consistent with current practice and that retaining them would benefit patients and would not be a safety concern.

Denosumab

Even though the evidence for bisphosphonates and denosumab was not reviewed for this guideline, the committee agreed to cross refer to the related NICE technological appraisal guidance on denosumab because it can be used as an option instead of bisphosphonates for people with bone metastases from breast cancer and from solid tumours other than prostate.

How the recommendations might affect practice

The recommendations are consistent with current practice.

Return to recommendations

Corticosteroid therapy

Recommendations 1.8.1 to 1.8.7

Why the committee made the recommendations

The evidence for corticosteroid therapy was limited, originating from 3 small studies, so the committee also took into account the recommendations from the previous version of the guideline and used their expertise and experience to make the recommendations.

The committee noted that the previous recommendations no longer reflected current practice, particularly in relation to giving corticosteroids to all people with MSCC regardless of their symptoms. The committee also discussed that the use of corticosteroids in people with suspected MSCC could reduce the chance of a positive biopsy.

The committee decided that it was important to make separate recommendations for haematological malignancy. Based on their expertise, the committee agreed that dexamethasone is beneficial for people with confirmed haematological malignancy with infiltration of the spinal column or canal, regardless of whether they have neurological symptoms. Corticosteroid treatment is commonly used for treating myeloma once a haematological malignancy is confirmed (which the committee acknowledged is in line with the NICE guideline on myeloma). The committee agreed that a 16 mg dose of oral dexamethasone (or equivalent parenteral dose) to start with is current practice, but were aware that in some cases a different corticosteroid or a different dose may be used, so they recommended that ongoing treatment should be discussed with the specialist haematology team.

The committee discussed that corticosteroids should be avoided if a haematological malignancy is suspected but has not been confirmed, because of the potential for a direct anti-tumour effect on B-cell lymphoma causing a reduction in MRI abnormalities, and making biopsy and histologic confirmation more difficult. Therefore, based on experience and expertise, the committee agreed that in these cases, specialist haematological advice would be needed before corticosteroid treatment is started.

There was some evidence that functional status was improved with dexamethasone, but the studies were too small to draw clear conclusions. The committee noted that this finding was supported by their expertise and experience. They agreed that for people with cord compression with neurological symptoms or signs, corticosteroids can reduce inflammation and promote stabilisation of blood vessel membranes at the compression site, consequently reducing back pain and neurological deficits. The evidence also showed an increase in treatment-related toxicity but numbers in the trial were small so there was some uncertainty in these findings. The committee also agreed that, because of potential toxicity and other side effects, corticosteroids should be stopped once other treatment options, such as surgery or radiotherapy, are available. Corticosteroids should be reduced gradually because a sudden withdrawal may cause adverse events, such as a sharp fall in blood pressure, and affect blood glucose levels. If spinal metastases or MSCC is ruled out, dexamethasone should be discontinued because of the potential for adverse events.

The committee agreed, based on their knowledge and expertise, that toxicity is a problem, particularly if dexamethasone is given longer term. They therefore recommended that it should not be used for people without neurological symptoms unless it is part of another treatment regimen, the person has severe pain or the person has a haematological malignancy.

In situations where there are no other treatment options (because they have been tried and were not effective, the person is too unwell to tolerate other treatment, or giving another treatment is too risky) and symptoms return or worsen as dexamethasone is reduced, the committee agreed that it could be considered for longer.

Increased blood glucose is a side effect of corticosteroid treatment, so the committee recommended blood glucose monitoring. They agreed that a proton pump inhibitor should also be prescribed to reduce the potential risk of peptic ulcer associated with corticosteroid therapy. They acknowledged that glucose monitoring and giving adjunct proton pump inhibitor treatment is common practice but agreed that they are important issues to highlight.

How the recommendations might affect practice

The committee agreed that the recommendations reflect good current practice.

Return to recommendations

Tools for assessing spinal stability and prognosis

Recommendations 1.9.1 to 1.9.3

Why the committee made the recommendations

The committee considered the evidence as well as using their knowledge and experience to make the recommendations.

There were only 2 studies of scoring systems to assess spinal stability, both using the Spinal Instability Neoplastic Score (SINS). The evidence showed that it was effective at ruling out instability, but the number of false-positive results was relatively high at the usual threshold. There was also some uncertainty about the quality of the evidence.

The committee discussed that scoring systems can be helpful additions to clinical assessment, especially for less experienced clinicians, ensuring that the main features for determining spinal instability are assessed. They also allow assessments to be standardised, documented and audited.

Although the evidence was limited to SINS, the committee were aware of other systems used in current practice. They included SINS as an example, but did not want to discourage the use of other validated scoring systems already in use or in development.

There was a large amount of evidence for many different prognostic scoring systems, including original and revised versions for some. Analysis showed that these varied in their ability to predict survival, and none of the systems reviewed was better overall at predicting prognosis. The committee noted that, although the Tokuhashi (and the revised Tokuhashi) scoring system was less accurate at predicting short-term (under 6 months) to medium-term (6 to 12 months) survival, it was better than other tools at predicting longer-term prognosis (over 12 months). The committee did not want to be too prescriptive about using a particular scoring system so they gave the revised Tokuhashi scoring system as an example, but they agreed that other validated scoring systems with evidence of accuracy could be used.

The committee wanted to encourage the use of scoring systems that demonstrated good accuracy (both calibration and discrimination) to encourage a more standardised approach to assessing survival. However, because of the lack of certainty, they agreed that treatment decisions should not be based solely on a prognostic score. The evidence showed that many people lived both longer and shorter than predicted, particularly for short- to medium-term survival. To ensure fair access to treatments, the committee agreed that a broader, individualised assessment should be used that includes other prognostic factors alongside a scoring system.

The committee noted that scoring systems have an important role in determining prognosis and informing decisions about treatment (both oncological and surgical). However, such decision making is complex and many other factors need to be taken into account. The committee agreed that scoring systems should not be used in isolation but could help support decision making alongside other clinical factors and patient preferences.

How the recommendations might affect practice

The recommendations reinforce current practice, which takes into account multiple sources of information, such as clinical assessment and results from investigations, as well as scores from validated scoring systems to inform decisions about treatment.

Return to recommendations

Radiotherapy and fertility

Recommendation 1.10.1

Why the committee made the recommendation

The committee took into account the recommendations from the previous version of the guideline and their expertise and experience to make the recommendation.

The committee agreed that the impact on future fertility of both the cancer and the radiotherapy treatment should be discussed with the person and, if appropriate (for example, depending on age and preferences), a referral should be made to a fertility specialist. The committee discussed that treatment of MSCC is usually urgent and fertility treatment can take time to organise and undertake in practice. Therefore, it is important to note that MSCC treatment should not be delayed awaiting further discussions with a fertility specialist. It was also acknowledged that radiotherapy fields for MSCC would usually not affect the gonads, so urgent radiotherapy treatment might not have as much of an impact on fertility as for other cancers.

How the recommendation might affect practice

The committee agreed that the recommendation reflects current practice.

Return to recommendations

Radiotherapy to treat painful spinal metastases and prevent MSCC

Recommendations 1.10.2 and 1.10.3

Why the committee made the recommendations

The committee discussed the evidence and also took into account the recommendations from the previous version of the guideline and their expertise and experience to make the recommendations.

The evidence showed that for treating painful spinal bone metastases (with no evidence of MSCC), single fraction radiotherapy was as effective as multiple fractions in terms of pain reduction, spinal stability and overall survival, and it had fewer treatment-related adverse events. The committee agreed that it should be offered in preference to multiple fraction radiotherapy.

There was also evidence from a randomised controlled trial showing that stereotactic ablative body radiotherapy was more effective than conventional radiotherapy in reducing pain for people with spinal metastases without MSCC. This would deliver a precise dose while sparing damage to healthy tissue. Even though the evidence was limited, the committee agreed that this could be an option for people with a good overall prognosis because the evidence showed that it was safe and effective. They also discussed that those with limited metastatic disease (based on expertise, they thought that usually up to 3 discrete metastases would be considered standard for oligometastases) could benefit from this. They agreed that this number would balance the potential that all cancer sites could be controlled with an acceptable level of toxicity.

The committee discussed that there is a lack of awareness about the risks of radiotherapy for haematological spinal metastatic disease and the potential for reducing the success of stem cell harvesting. Depending on the dose, radiotherapy in the lower lumbar or pelvic area can be toxic and compromise haemopoietic stem cell collection. The committee agreed that a discussion with a relevant specialist (pain specialist or haematologist) should take place if radiotherapy is considered for people with haematological disease.

How the recommendations might affect practice

The committee discussed that stereotactic ablative body radiotherapy is not currently made available for painful spinal metastases and would be a challenge to implement initially because new pathways for this would need to be established. However, all centres have access to this technology because it is used in the treatment of other cancers (such as lung cancer) and, once pathways are organised, this would not have a significant resource impact.

Return to recommendations

Radiotherapy to treat MSCC

Recommendations 1.10.4 to 1.10.6

Why the committee made the recommendations

The committee discussed the evidence and also took into account the recommendations from the previous version of the guideline and their expertise and experience to make the recommendations.

Although there was no evidence on the timing of radiotherapy, the committee agreed that MSCC is an oncological emergency and rapid access to radiotherapy is needed to prevent neurological impairment. They also agreed that the previous guideline set a benchmark of 24-hour access to radiotherapy 7 days a week, and changing this would lower the standard of care for people needing emergency treatment for MSCC. The committee discussed that radiotherapy is likely to prevent further neurological damage in people who have MSCC that is unlikely to be suitable for spinal surgery. They therefore recommended it as an urgent option in such situations. However, they decided that it is not likely to be beneficial for people with MSCC and complete prolonged tetraplegia or paraplegia whose pain is controlled or for people whose overall prognosis is considered to be poor, because the benefits would be outweighed by the side effects of the radiotherapy.

The evidence showed that single fractionation was as effective as multiple fractions, and the committee agreed that it provides a better patient experience, is more convenient and lower in cost. Avoiding multiple unnecessary hospital visits can be particularly important for people with reduced life expectancy. The studies all used an 8 Gy fraction and therefore the committee recommended this because it was shown to be safe and effective.

The committee were concerned about the increased risk of long-term side effects associated with treating a large volume of spinal cord with a single dose of radiotherapy, for example, when treating multiple levels or a large treatment field. This may also be a concern when retreatment with radiotherapy is being considered. There is no clear definition of a large volume or treatment field and the committee agreed that this should be decided using clinical judgement. In these circumstances, multiple fraction radiotherapy would be appropriate.

In the absence of evidence related to stereotactic ablative body radiotherapy for the treatment of MSCC, the committee could not comment on its effectiveness but made a research recommendation to compare postoperative stereotactic ablative radiotherapy with postoperative standard radiotherapy.

How the recommendations might affect practice

The committee acknowledged that recommending single rather than multiple fraction radiotherapy was a change to current practice. They agreed that this would improve the efficiency of services and would be cost saving because it would avoid multiple hospital visits and therefore also reduce costs while being equally safe and effective.

Return to recommendations

Radiotherapy for asymptomatic spinal metastases

Recommendation 1.10.7

Why the committee made the recommendation

There was no evidence on the use of radiotherapy for people with asymptomatic spinal metastases so the committee made recommendations based on their experience. They agreed that the adverse effects of radiotherapy would outweigh the potential benefits of the treatment and that it should only be considered in the exceptional circumstances listed: for those in a randomised trial with the intention of preventing MSCC, those with limited metastatic disease (based on expertise, they thought that usually up to 3 discrete metastases would be considered standard) and where radiotherapy could be used to control disease, and for those with radiological signs of spinal cord compression by an epidural tumour (where radiotherapy may prevent progression to symptomatic MSCC).

How the recommendation might affect practice

The committee discussed that the recommendation is consistent with current practice.

Return to recommendations

Postoperative radiotherapy and further radiotherapy treatment

Recommendations 1.10.8 to 1.10.10

Why the committee made the recommendations

Postoperative radiotherapy treatment

The committee discussed the evidence that radiotherapy and surgery had an important benefit over radiotherapy alone in relation to neurological and functional status. Based on this, the committee recommended that postoperative radiotherapy should be offered for spinal metastases or MSCC.

Further radiotherapy treatment

No evidence was identified on further courses of radiotherapy after initial treatment, so the committee made recommendations based on their experience. They decided to highlight some of the factors that should be taken into account when making decisions about whether or not to offer further radiotherapy treatment.

How the recommendations might affect practice

The recommendations are consistent with current good practice. Postoperative radiotherapy is commonly given in current practice and the recommendation will reinforce this.

Return to recommendations

Timing of invasive interventions

Recommendations 1.11.1 to 1.11.5

Why the committee made the recommendations

Based on experience, the committee noted that there are many different factors to consider that may impact on the success of surgical interventions. These include overall fitness for surgery, but also prognosis and issues related to primary cancer type and stage. To ensure that all relevant information is taken into account and to make decisions more efficient, the committee recommended that discussions should take place before surgery is offered, between people from the appropriate specialties within the multidisciplinary team in the MSCC service. This would usually include the oncologist and spinal surgeon but could also draw on other people’s expertise where necessary.

The committee discussed, based on experience, that people are sometimes referred to MSCC services without a known primary cancer type. Establishing this could make a difference to management plans, so the committee agreed that a radiologically guided biopsy should be performed in this situation as long as an intervention is not needed immediately.

There was no evidence about different timing of treatments, but the committee recognised that timing is important to prevent neurological decline. They agreed that surgery should be carried out as soon as possible. They decided not to be too prescriptive about exact timeframes because there is variation in how much information is needed and available to come up with a clear surgical treatment approach. However, they agreed that speed of onset and rate of progression of neurological symptoms and signs would be an indicator of urgency.

The committee discussed that in current clinical practice some clinicians use a time limit from onset of paralysis to make decisions about whether to offer surgery to people with complete paralysis. They noted that this was not evidence based and that it is not impossible for some paralysis to be reversed even if some time has already passed.

How the recommendations might affect practice

There is variation in who is making decisions about surgery and whether or not this would involve other specialties than spinal surgery. The committee agreed that having joint discussions about surgical treatment plans would make the treatment more tailored to the individual and therefore more efficient and likely to improve outcomes. The recommendations related to timing of surgical interventions reflect current practice and will standardise it.

Return to recommendations

Options for invasive interventions

Recommendations 1.11.6 to 1.11.9

Why the committee made the recommendations

Options for invasive interventions depend on whether there is cord compression or not, and there was some evidence relating to interventions for both of these groups. The committee considered clinical evidence, published economic evidence and a new economic model when drafting the recommendations. The evidence was related to very specific populations and mainly compared different types of surgery, making it hard to apply to the whole population. The committee therefore also drew on their expertise and experience.

The economic evidence and economic model only found vertebroplasty and kyphoplasty to be cost effective in some circumstances. However, given that these interventions are used to prevent serious adverse events, including collapse of the spine, the committee agreed that they could be considered if appropriate.

Interventions to treat spinal metastases without MSCC

Most of the evidence did not favour one technique over another for people without cord compression. This was consistent with the committee's experience that clinical judgement is important and there are many factors that may determine which specific technique would be used (for example, level of spinal instability or tumour size). The committee therefore decided to recommend a choice of possible interventions that may be suitable depending on the characteristics of the person's condition.

There was no evidence related to the prevention of MSCC for people with spinal metastases without pain or instability, so the committee decided to make a research recommendation on surgery to prevent MSCC to address this.

Interventions to treat spinal metastases with MSCC

The evidence on the most effective surgical procedure to treat MSCC was inconclusive. Based on experience, the committee noted that there are only 2 interventions that can be considered. Depending on the person's condition and clinical judgement, surgery would focus on decompression or stabilisation of the spine.

Based on experience, the committee recommended stabilisation surgery when there is cord compression with suspected or proven instability with mechanical pain that is not controlled by analgesia. They agreed that it should be carried out even if the person has severe neurological deficit, because it is an oncological emergency to prevent collapse of the spine.

If surgery cannot be performed because of the prognosis or other factors, the only other possibility of stabilisation is external spinal support to attempt to prevent collapse of the spine. No evidence was identified for this but the committee decided that this would be the only option available and should be offered.

How the recommendations might affect practice

The committee discussed that there is variation in practice, but this is due to differences in the characteristics of the condition that are being treated. However, the committee agreed that the recommendations would be consistent with current practice and give clinicians the tools to tailor their surgical approach to each person.

Return to recommendations

Rehabilitation and supportive care

Recommendations 1.12.1 to 1.12.5

Why the committee made the recommendations

The committee discussed the recommendations on service configuration for support and rehabilitation and how they would be implemented in practice. They also reviewed the recommendations in the previous guideline.

Based on their experience, the committee noted that for rehabilitation to be effective it needs to be supported a full range of support services and considered at the earliest opportunity so that people have a plan in place to regain function after treatment, based on their own preferences, priorities and goals.

The committee agreed that specialist rehabilitation should be offered if needed and could include admission to a specialist rehabilitation unit depending on the person's circumstances, level of function, treatment and likelihood to benefit from this. They decided that they could not be prescriptive about who would most likely benefit from this because it would need to be based on clinical judgement taking into account many different clinical and social factors.

The previous guideline included recommendations on preventing and managing complications; however, these are covered in more detail in other NICE guidance, so cross references have been included.

How the recommendations might affect practice

The recommendations are consistent with current good practice.

Return to recommendations

Context

Metastases to the spinal column occur in 3% to 5% of all people with cancer and may cause pain, vertebral collapse and spinal cord or root compression. More than 4,000 people present annually in England and Wales with spinal metastases. The NHS estimates that by 2028, around 55,000 more people per year are expected to live at least 5 years with a cancer diagnosis, which is likely to increase the number of people needing timely, appropriate and evidence-based management of spinal metastasis.

The 2008 NICE guideline on metastatic spinal cord compression changed the way services are delivered and care provided for people living with cancer who present with disease that involves the spinal column, and have vertebral collapse or neural compression. However, stakeholders involved in the 2018 surveillance process highlighted changes in evidence and management that necessitated a full review and update of the guidance.

This review has been undertaken against the backdrop of hugely burdened cancer services, the consequences of the Covid-19 pandemic but also with the future hope offered by the establishment of new cancer alliances, and the NHS Long Term Plan for Cancer.

In this guideline, the needs of people over 16 years of age, presenting with spinal metastases, direct malignant infiltration of the spine or metastatic spinal cord or root compression have been considered, covering the care pathway from presentation to early rehabilitation.

Finding more information and committee details

To find NICE guidance on related topics, including guidance in development, see the NICE webpage on cancer.

For details of the guideline committee, see the committee member list.

Update information

This guideline is an update of NICE guideline CG75 (published November 2008) and will replace it.

Recommendations on bisphosphonates and denosumab are shaded in grey because we have not reviewed the evidence. The recommendations from the previous version of the guideline have been retained (labelled **[2008])** and we will review the evidence in a later update to take into account upcoming patent changes. In some cases, changes have been made to bring the language and style up to date without changing the intent of the recommendation.