

**Metastatic spinal cord compression:
diagnosis and management of adults at
risk of and with metastatic spinal cord
compression**

NICE guideline

Draft for consultation, May 2008

If you wish to comment on this version of the guideline, please be aware that all the supporting information and evidence is contained in the full version.

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Introduction

It is difficult to know what the true incidence of metastatic spinal cord compression (MSCC) is in England and Wales because the cases are not systematically recorded. However, evidence from an audit carried out in Scotland between 1997 and 1999¹ and from a published study from Ontario, Canada², suggests that the incidence may be up to 80 cases per million population per year. This would mean around 4000 cases per year in England and Wales or more than 100 cases per cancer network per year.

The Clinical Resource and Audit Group (CRAG) audit clearly showed that there were significant delays from the time when patients first developed symptoms until hospital doctors and general practitioners recognised the possibility of spinal cord compression and made the appropriate referral. The median times from the onset of back pain and nerve root pain to referral were 3 months and 9 weeks respectively. As a result, 48% of patients were unable to walk at the time of diagnosis and of these the majority (67%) had recovered no function at 1 month. Of those walking unaided at the time of diagnosis (34%), 81% were able to walk (either alone or with aid) at 1 month. The ability to walk at diagnosis was also significantly related to overall survival.

At present, relatively few patients with metastatic spinal cord compression in the UK receive surgery for the condition. But research evidence suggests that early surgery may be more effective than radiotherapy in a selected subset of patients.

The guideline will assume that prescribers will use a drug's summary of product characteristics to inform their decisions for individual patients.

¹ Levack, P, Collie D, Gibson A et al. (2001) A prospective audit of the diagnosis, management and outcome of malignant cord compression (CRAG 97/08). Edinburgh: CRAG.

² Loblaw DA, Laperriere NJ, Mackillop WJ (2003) A population-based study of malignant spinal cord compression in Ontario. *Clinical Oncology* 15 (4): 211–17.

Patient-centred care

This guideline offers best practice advice on the care of patients at risk of or with metastatic spinal cord compression.

Treatment and care should take into account patients' needs and preferences. People with metastatic spinal cord compression should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals. If patients do not have the capacity to make decisions, healthcare professionals should follow the Department of Health guidelines – 'Reference guide to consent for examination or treatment' (2001) (available from www.dh.gov.uk). Healthcare professionals should also follow a code of practice accompanying the Mental Capacity Act (summary available from www.publicguardian.gov.uk).

Good communication between healthcare professionals and patients is essential. It should be supported by evidence-based written information tailored to the patient's needs. Treatment and care, and the information patients are given about it, should be culturally appropriate. It should also be accessible to people with additional needs such as physical, sensory or learning disabilities, and to people who do not speak or read English.

If the patient agrees, families and carers should have the opportunity to be involved in decisions about treatment and care.

Families and carers should also be given the information and support they need.

Key priorities for implementation

Service configuration and urgency of treatment

- Every cancer network should ensure that the appropriate services for the efficient and effective diagnosis, treatment, rehabilitation and ongoing care of patients with MSCC are commissioned, in place and regularly monitored through prospective audit of the care pathway. (1.1.1.1)

The patient's experience of MSCC

- If MSCC is confirmed, definitive treatment should always start before any neurological deterioration and ideally within 24 hours of first presentation. (1.2.3.4)

Early detection

- Patients with diagnosed bone metastases or at high risk of developing bone metastases should be given an information leaflet which explains the early symptoms of MSCC, and advises them (and their treating doctors) what to do should they develop these symptoms. See Appendix 2 of the full guideline. (1.3.1.1)
- Patients with cancer and any of the following symptoms should be discussed with the MSCC coordinator urgently (within 24 hours):
 - pain situated in the middle or upper spine
 - progressive lower spinal pain
 - severe unremitting lower (lumbar) spinal pain
 - spinal pain aggravated by straining
 - localised spinal tenderness on examination
 - nocturnal pain preventing sleep
 - radicular pain. (1.3.2.1)
- Patients with cancer and any of the following symptoms or signs should be discussed with the MSCC coordinator immediately and viewed as an oncological emergency:

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- neurological symptoms including difficulty in walking, motor symptoms, sensory loss or bladder or bowel dysfunction
- neurological signs of spinal cord compression. (1.3.2.2)
- Patients with suspected MSCC should have MRI of the whole spine (unless there is a specific contraindication). This should be done in time to allow definitive treatment to be planned within 24 hours of the suspected diagnosis. (1.3.3.3)

Treatment strategies/selection

- Patients with severe mechanical pain suggestive of vertebral bony structural instability or any neurological impairment suggestive of spinal cord functional instability, and suspected to have, or newly diagnosed with, MSCC should be nursed flat with neutral spine alignment (including 'log rolling' and use of a slipper pan for toilet) until bony and neurological stability is confirmed and cautious remobilisation may begin. (1.5.2.1)
- Surgery should be carefully planned to maximise the probability of preserving spinal cord function without undue risk to the patient, taking into account the overall prognosis, patient fitness and the surgeon's familiarity with the procedure planned. (1.5.2.16)
- Urgent access to radiotherapy and simulator facilities should be available for patients with MSCC requiring active treatment and unsuitable for surgery (including daytime out of hours facility). (1.5.4.1)

Supportive care

- Discharge planning and ongoing care for patients with MSCC should start early, led by a named individual from within the responsible clinical team and involving the patient and carers, their primary oncology site team and community support including primary and palliative care as required. (1.6.5.4)

1 Guidance

The following guidance is based on the best available evidence. The full guideline ([add hyperlink]) gives details of the methods and the evidence used to develop the guidance.

1.1 *Service configuration and urgency of treatment*

1.1.1 Introduction

- 1.1.1.1 Every cancer network should ensure that the appropriate services for the efficient and effective diagnosis, treatment, rehabilitation and ongoing care of patients with MSCC are commissioned, in place and regularly monitored through prospective audit of the care pathway.
- 1.1.1.2 Every cancer network should have a clear pathway for the diagnosis, treatment, rehabilitation and ongoing care of patients with MSCC.
- 1.1.1.3 Cancer networks should ensure that there is access to urgent MRI for all patients with suspected MSCC. This service should be available outside normal working hours.
- 1.1.1.4 Every cancer network should have a Network Site Specific Group (NSSG) for MSCC, including representatives from primary, secondary and tertiary care.
- 1.1.1.5 The cancer network should appoint a network lead for MSCC whose responsibilities will include:
- Advising the cancer network, commissioners and providers about the provision and organisation of relevant clinical services.
 - Ensuring that the local pathways for diagnosis and management are documented, agreed and consistent across the network.

- Ensuring that there are appropriate points of telephone contact to an MSCC coordinator and to senior professional advice.
- Maintaining a network-wide audit of the incidence, timeliness of management, and outcomes of patients with MSCC.
- Arranging and chairing bi-annual meetings of the Network Site Specific Group for MSCC, at which the arrangements for care of these patients across the network will be discussed, agreed and outcomes evaluated.

1.1.1.6 Every secondary or tertiary care centre should have an identified lead healthcare professional (usually, but not necessarily, medical) for MSCC whose responsibilities will include:

- Representing the hospital at network level in the development of clinical pathways.
- Disseminating and implementing local pathways for the diagnosis and appropriate management of patients with known or suspected MSCC.
- Ensuring timely and effective communication between all relevant healthcare professionals, including primary care and palliative care.
- Raising and maintaining the awareness and understanding among all clinical staff across the locality.
- Contributing to regular network audits of the care of patients with MSCC.

1.1.1.7 Commissioners should establish a joint approach with councils that have social services responsibilities for the planning and delivery of care to ensure efficient provision of equipment and support to meet the individualised needs of people with MSCC.

1.1.2 MSCC coordinator and senior professional advice (SPA) – role and responsibilities

- 1.1.2.1 Each centre treating MSCC should identify the individuals responsible for performing the role of MSCC coordinator and ensure its availability at all times.
- 1.1.2.2 Each centre treating MSCC should have a single point of contact to provide advice and coordinate the patient pathway at all times.

1.1.3 Senior professional advice

- 1.1.3.1 The optimal care of patients with MSCC should be decided by senior professional advisers (SPA); these include senior clinical oncologists, spinal surgeons and radiologists with experience and expertise in the treatment of MSCC, taking into account all aspects of the patient's condition.
- 1.1.3.2 Every centre treating patients with MSCC should ensure that there are consultant clinical oncologists, spinal surgeons and radiologists available at all times to give advice and help inform the decision-making process in patients with proven MSCC.

1.2 *The patient's experience of MSCC*

1.2.1 Supporting patient decisions

- 1.2.1.1 Health professionals should ensure that communication with patients with known or suspected MSCC should be, as far as possible, explicit and consistent, and that the patients and their families are fully informed and involved in important decisions about treatment.

1.2.2 Emotional and family support

- 1.2.2.1 The psychological and spiritual needs of people with MSCC and their families should be assessed following diagnosis of MSCC,

and at other key points including the end of rehabilitation and on discharge from hospital.

- 1.2.2.2 Patients with MSCC or their family members who report significant levels of distress should be referred to specialist psychological support services and/or spiritual support services appropriate to their needs.
- 1.2.2.3 Information should be provided explaining to patients with MSCC how to access psychological support services when needed.
- 1.2.2.4 Bereavement support services based on the three component model outlined in the NICE guidance on 'Improving supportive and palliative care for adults with cancer' should be available to patients' families.

1.2.3 Effects of delayed diagnosis and treatment

- 1.2.3.1 Patients with cancer at risk of developing MSCC who have severe back pain or spinal nerve root pain, or the beginnings of spinal cord dysfunction should be urgently assessed at the cancer unit or cancer centre.
- 1.2.3.2 Imaging departments should configure MRI lists to permit time for examination of these patients at short notice (displacing routine cases into ad hoc overtime).
- 1.2.3.3 If MRI is not available on site at the acute hospital, patients with suspected MSCC should be transferred to a unit with 24-hour capability for urgent MRI and definitive treatment.
- 1.2.3.4 If MSCC is confirmed, definitive treatment should always start before any neurological deterioration and ideally within 24 hours of first presentation.

1.3 *Early detection*

1.3.1 Communicating symptoms and risks

- 1.3.1.1 Patients with diagnosed bone metastases or at high risk of developing bone metastases should be given an information leaflet which explains the early symptoms of MSCC, and advises them (and their treating doctors) what to do should they develop these symptoms. See Appendix 2 of the full guideline.
- 1.3.1.2 Patients with cancer who present with spinal pain should be made aware of the symptoms of MSCC and given clear information about whom to contact if those symptoms develop.
- 1.3.1.3 Healthcare professionals should make patients aware whom they should contact if their symptoms progress while they are waiting for urgent investigation of suspected MSCC.

1.3.2 Early symptoms and signs

- 1.3.2.1 Patients with cancer and any of the following symptoms should be discussed with the MSCC coordinator urgently (within 24 hours):
- pain situated in the middle or upper spine
 - progressive lower spinal pain
 - severe unremitting lower (lumbar) spinal pain
 - spinal pain aggravated by straining
 - localised spinal tenderness on examination
 - nocturnal pain preventing sleep
 - radicular pain.
- 1.3.2.2 Patients with cancer and any of the following symptoms or signs should be discussed with the MSCC coordinator immediately and viewed as an oncological emergency:
- neurological symptoms including difficulty in walking, motor symptoms, sensory loss or bladder or bowel dysfunction

- neurological signs of spinal cord compression.

1.3.2.3 Patients without a prior cancer diagnosis with symptoms and/or signs suggestive of MSCC should be referred for urgent investigation.

1.3.2.4 Patients with cancer who develop lower (lumbar) spinal pain that is clinically thought to be of degenerative origin (i.e. that is not progressive, severe or aggravated by straining and with no accompanying neurological symptoms) should be reviewed frequently for persistence or progression of pain or the development of neurological symptoms or signs.

1.3.3 Routine MRI and early detection of MSCC

1.3.3.1 In patients with a previous diagnosis of malignancy, routine imaging of the spine is not recommended if they are asymptomatic.

1.3.3.2 Serial imaging of the spine in asymptomatic patients with a high risk of developing spinal metastases should only be done as part of a properly planned and funded research programme.

1.3.3.3 Patients with suspected MSCC should have MRI of the whole spine (unless there is a specific contraindication). This should be done in time to allow definitive treatment to be planned within 24 hours of the suspected diagnosis.

1.4 Choice of imaging

1.4.1 Introduction

1.4.1.1 MRI of the spine in patients with suspected MSCC should be supervised and reported by a radiologist and should include sagittal T1 or STIR sequences of the whole spine, to prove or exclude the presence of spinal metastatic disease. Sagittal T2 weighted sequences should also be performed to show the level and degree of compression of the cord or cauda equina by a soft tissue mass

and to detect lesions within the cord itself. Supplementary axial imaging should be performed through any significant abnormality noted on the sagittal scan.

- 1.4.1.2 For patients with suspected MSCC in whom MRI is contraindicated, the centre at which the patient is most likely to receive treatment (either surgery or radiotherapy) should be contacted to decide on the most appropriate method of imaging and where this should be carried out.
- 1.4.1.3 Targeted CT scan with three plane reconstruction should be performed to assess spinal stability and plan vertebroplasty or spinal surgery in MSCC.
- 1.4.1.4 Myelography in suspected spinal cord compression should only be undertaken at a neuroscience or spinal surgical centre, because of the technical expertise required and because patients with MSCC may deteriorate following myelography and require urgent decompression.
- 1.4.1.5 Plain radiographs of the spine should not be done either to make or to exclude the diagnosis of metastatic involvement of the spine or MSCC.

1.5 *Treatment strategies/selection*

1.5.1 Treatments primarily for pain or the prevention of collapse/cord compression

Analgesia

- 1.5.1.1 Conventional analgesia should be used as required in patients with vertebral metastases in escalating doses as described by the WHO three-step pain ladder.

- 1.5.1.2 Specialist pain care including invasive procedures and neurosurgical interventions should be available for patients with intractable pain from vertebral metastases.

Bisphosphonates

- 1.5.1.3 Patients with vertebral involvement from myeloma or breast cancer should be treated with bisphosphonates to reduce pain and the risk of vertebral fracture/collapse.
- 1.5.1.4 Patients with vertebral metastases from prostate cancer should be treated with bisphosphonates to reduce pain only when other analgesics have failed.
- 1.5.1.5 Bisphosphonates should not be used to treat pain or with the intention of preventing MSCC in patients with vertebral involvement from tumour types other than myeloma, breast cancer or prostate cancer (when other analgesics have failed), except as part of a randomised controlled trial.

Radiotherapy

- 1.5.1.6 Patients with spinal metastases and non-mechanical vertebral pain should be offered 8 Gy single fraction palliative radiotherapy.
- 1.5.1.7 Patients with asymptomatic vertebral metastases should not have radiotherapy with the intention of preventing MSCC except as part of well-designed randomised trials.

Vertebroplasty and kyphoplasty

- 1.5.1.8 Patients with vertebral metastases, mechanical pain resistant to analgesia, and/or vertebral body collapse, and no evidence of spinal instability or MSCC should be considered for vertebroplasty or kyphoplasty.
- 1.5.1.9 Vertebroplasty or kyphoplasty for vertebral metastases should only be performed after discussion between appropriate specialists including an oncologist, interventional radiologist, and spinal

surgeon, and in facilities where there is good access to spinal surgery.

Surgery

- 1.5.1.10 Patients with vertebral metastases and mechanical pain resistant to other forms of treatment should be considered for spinal stabilisation surgery irrespective of the degree of neurological disability and even if completely paralysed.
- 1.5.1.11 Patients with vertebral metastases causing mechanical pain and/or imaging evidence of structural spinal failure or instability should be urgently considered for surgical treatment to stabilise the spine and prevent MSCC.
- 1.5.1.12 Patients with MSCC with severe mechanical pain and/or imaging evidence of spinal instability, but unsuitable for surgery should be considered for some form of external spinal support (i.e. halo vest, or appropriate variations of cervico-thoraco-lumbar orthosis).
- 1.5.1.13 Patients with vertebral metastases without pain or instability should not be operated on with the intention of preventing MSCC except as part of well-designed randomised trials.

Combination therapy

- 1.5.1.14 All decisions to treat pain or prevent progression of metastatic spinal cancer when there are different options available should be made by a multi-disciplinary team in consultation with the patient.

1.5.2 Definitive treatment of spinal cord compression

Mobilisation

- 1.5.2.1 Patients with severe mechanical pain suggestive of vertebral bony structural instability or any neurological impairment suggestive of spinal cord functional instability, and suspected to have, or newly diagnosed with, MSCC should be nursed flat with neutral spine alignment (including 'log rolling' and use of a slipper pan for toilet)

until bony and neurological stability is confirmed and cautious remobilisation may begin.

- 1.5.2.2 For patients with MSCC, once any spinal shock has settled and neurology is stable, on-going assessment and close monitoring during gradual sitting from supine to 60 degrees over a period of 3–4 hours should be carried out by a physiotherapist.
- 1.5.2.3 When patients with MSCC begin gradual sitting, if their blood pressure remains stable and no significant increase in pain or neurological symptoms occurs, progression to unsupported sitting, transfers and mobilisation can be carried out as muscle power allows.
- 1.5.2.4 When mobilising patients with MSCC, if a significant increase in pain or neurological symptoms occurs, patients should be returned to a position where these changes reverse, and the stability of their spine reassessed.

Corticosteroids

- 1.5.2.5 All patients with suspected MSCC should be given a loading dose of at least 16 mg of dexamethasone as soon as possible after assessment.
- 1.5.2.6 Patients awaiting surgery or radiotherapy for MSCC should receive dexamethasone 16 mg daily. After surgery or the start of radiotherapy, the dose should be gradually reduced and stopped. If neurological function deteriorates at any time the dose should be increased temporarily.
- 1.5.2.7 For patients with MSCC who do not have surgery or radiotherapy, dexamethasone 16 mg daily should be gradually reduced and stopped. If neurological function deteriorates at any time the dose should be reconsidered.

- 1.5.2.8 Blood glucose should be monitored in all patients receiving corticosteroids.

Surgery (general principles)

- 1.5.2.9 Patients with MSCC should be treated with surgery that ensures both spinal cord decompression and durable spinal column stability.

Surgery (neurological ability)

- 1.5.2.10 Patients with MSCC should have surgery before they lose the ability to walk.
- 1.5.2.11 Patients with MSCC and residual distal sensory or motor function should have surgery, regardless of their ability to walk, provided that the prognosis would otherwise justify this.
- 1.5.2.12 Patients with MSCC and no distal neurological function for more than 24 hours should not have surgery unless stabilisation is required for pain relief.
- 1.5.2.13 Patients with suspected MSCC who have been completely paraplegic or tetraplegic for more than 24 hours should be discussed urgently with a senior oncologist before any imaging or hospital transfer.
- 1.5.2.14 Patients with suspected MSCC, a poor performance status and widespread metastatic disease should be discussed with a senior oncologist before any urgent imaging or hospital transfer.

Surgery (timing)

- 1.5.2.15 The speed of onset, duration, degree and site of origin (cord/cauda) of neurological symptoms and signs should be considered when assessing the urgency of surgery.

Surgery (tumour factors)

- 1.5.2.16 Surgery should be carefully planned to maximise the probability of preserving spinal cord function without undue risk to the patient, taking into account the overall prognosis, patient fitness and the surgeon's familiarity with the procedure planned.
- 1.5.2.17 Posterior decompression (in the form of laminectomy) alone should not be performed except in rare circumstances of isolated epidural tumour or neural arch metastases without bony instability.
- 1.5.2.18 If metastatic tumour involves the vertebral body or otherwise threatens spinal stability, posterior decompression should always be accompanied by internal fixation with or without bone grafting.
- 1.5.2.19 In patients with MSCC with vertebral body involvement who are expected to survive for a year or longer and who are fit to undergo a more prolonged procedure, anterior column (vertebral body) reconstruction should be performed.
- 1.5.2.20 In patients with MSCC with vertebral body involvement who are not expected to survive for a year or longer, anterior column (vertebral body) reconstruction with cement may be considered.
- 1.5.2.21 Except in very rare circumstances (for example, confirmed solitary renal metastasis following complete staging) en bloc excisional surgery with the objective of curing the cancer should not be attempted.

Surgery (patient factors)

Tumour

- 1.5.2.22 Attempts should be made to establish the primary histology of vertebral metastases when planning definitive treatment.

Extent of metastases

- 1.5.2.23 Patients with MSCC should be staged to determine the number, anatomical sites, and extent of vertebral and visceral metastases when planning definitive treatment.

Functional ability, general fitness, previous treatments, fitness for anaesthesia

- 1.5.2.24 Patients with MSCC should have their neurological ability, functional status, general health and fitness, previous treatments, magnitude of surgery, likelihood of complications, and fitness for general anaesthesia taken into account when planning treatment for MSCC.

Age

- 1.5.2.25 Patients with MSCC should not be denied either surgery (if fit enough) or radiotherapy on the basis of age alone.

1.5.3 The role of scoring systems

- 1.5.3.1 When assessing and treating patients with MSCC, recognised prognostic factors including the revised Tokuhashi scoring system³, ASA grading and relevant comorbidities should be systematically recorded and taken into account to decide whether surgery is appropriate and if so the type and extent.

- 1.5.3.2 Surgical treatment should not be considered for patients with MSCC whose prognosis is assessed as being less than 3 months.

1.5.4 Radiotherapy

- 1.5.4.1 Urgent access to radiotherapy and simulator facilities should be available for patients with MSCC requiring active treatment and unsuitable for surgery (including daytime out of hours facility).

- 1.5.4.2 Pre-operative radiotherapy should not be carried out.

³ See Appendix 3 of the full guideline

- 1.5.4.3 All patients with satisfactory surgical outcome should receive routine post-operative fractionated radiotherapy once the wound has healed.
- 1.5.4.4 Patients with epidural tumour without neurological disability, mechanical pain or bony instability should be offered fractionated radiotherapy.
- 1.5.4.5 Patients with good prognostic features should be treated with fractionated rather than single fraction radiotherapy.
- 1.5.4.6 Patients treated for pain control without any prospect of retaining or improving mobility should receive a single fraction of 8 Gy.
- 1.5.4.7 All patients with MSCC who are not suitable for spinal surgery should receive emergency radiotherapy unless:
- they have had complete paraplegia for more than 24 hours and their pain is well controlled
 - their overall prognosis is judged to be too poor.

Re-irradiation

- 1.5.4.8 Patients who have responded well to previous radiotherapy and develop recurrent symptoms after at least 3 months should be considered for further localised radiotherapy or surgery.
- 1.5.4.9 If patients are re-irradiated, the total dose should be kept below a biologically equivalent dose of 100 Gy where possible. Clinicians should discuss the possible benefits and contraindications with the patient before agreeing a treatment plan.

1.6 Supportive care

1.6.1 Interventions for thrombo-prophylaxis

- 1.6.1.1 All patients with MSCC likely to be immobile for more than 3 days and those awaiting spinal surgery should have thigh length

graduated compression/antiembolism stockings and either passive leg movements or intermittent pneumatic compression or foot impulse devices.

1.6.1.2 Patients who are immobile with MSCC who are not treated surgically, and those 24 hours after surgery should be treated with subcutaneous thrombo-prophylactic dose low molecular weight heparin.

1.6.1.3 For patients with MSCC the duration of thrombo-prophylactic treatment should be individually assessed, based on the presence of ongoing risk factors, overall clinical condition and return to mobility.

1.6.2 Management of pressure ulcers

1.6.2.1 A risk assessment for pressure ulcers should be undertaken and documented (using a recognised assessment tool) at the beginning of an episode of care for patients with MSCC and thereafter at each turn while the patient is on bed rest and at least daily thereafter.

1.6.2.2 While on bed rest, patients with MSCC should be turned using safe turning procedures at least every 2 hours. Patients who are not on bed rest should be encouraged to mobilise regularly (every few hours). Those who are unable to stand or walk should be encouraged and assisted to perform pressure redistribution activities such as forward/sideways leaning at least hourly when they are sitting out.

1.6.2.3 Patients with MSCC should be provided promptly with pressure relieving devices appropriate to their pressure risk assessment score. For most patients this will mean cushions and mattresses with very high grade pressure relieving properties.

1.6.2.4 Pressure sore healing protocols according to the NICE clinical guideline B (2001) 'Pressure ulcer risk assessment and prevention'

and NICE clinical guideline 29 (2005) 'The management of pressure ulcers in primary and secondary care' should be adhered to for patients with MSCC.

1.6.3 Bladder and bowel continence management

- 1.6.3.1 All patients with MSCC should have their bowel and bladder function assessed on initial presentation and a plan of care should be started.
- 1.6.3.2 Patients with MSCC who are continent, without urinary retention or disturbed bowel function should be monitored at least daily for changes in bladder and bowel function.
- 1.6.3.3 Bladder dysfunction in patients with MSCC should be managed initially by a urinary catheter on free drainage. If long-term catheterisation is required, intermittent catheterisation or suprapubic catheters should be considered.
- 1.6.3.4 Controlled faecal continence should be achieved by a mixture of faecal softeners to prevent constipation and suppositories every 2-3 days depending on comfort and food intake in patients with MSCC.
- 1.6.3.5 Patients with MSCC and a distended bladder or bowel are at risk of autonomic dysreflexia. If this occurs the underlying cause should be treated immediately and if necessary hypertension treated with nifedipine or GTN.

1.6.4 Maintaining circulatory and respiratory functioning

- 1.6.4.1 Initial assessment and routine monitoring of all patients with MSCC should include heart rate and blood pressure measurement, respiratory rate and pulse oximetry.
- 1.6.4.2 Symptomatic postural hypotension in patients with MSCC should be managed by patient positioning and devices to improve venous

return (such as foot pumps and thromboembolic support stockings) in the short term, avoiding overhydration which may provoke pulmonary oedema.

- 1.6.4.3 Prophylactic respiratory management in patients with MSCC should include clearing of secretions by breathing exercises, assisted coughing and suctioning, and re-expansion of affected lung by deep breathing, positioning, and where necessary supplement by intermittent positive pressure ventilation and bi-phasic positive airway pressure.

1.6.5 Access to specialist rehabilitation and transition to care at home

- 1.6.5.1 All patients admitted to hospital with MSCC should have access to both physiotherapy and occupational therapy services for assessment, advice and rehabilitation.
- 1.6.5.2 The rehabilitation of patients with MSCC should be focused on short term, realistic goals aimed at promoting functional independence, participation in normal activities of daily life, and quality of life.
- 1.6.5.3 Admission to a specialist rehabilitation unit should be offered to those patients with MSCC who are most likely to benefit, taking into account factors including prognosis, activity tolerance and rehabilitation potential.
- 1.6.5.4 Discharge planning and ongoing care for patients with MSCC should start early, led by a named individual from within the responsible clinical team and involving the patient and carers, their primary oncology site team and community support including primary and palliative care as required.
- 1.6.5.5 Referral to community-based rehabilitation and supportive care services should be offered to people with MSCC following their

return home, in order to maximise their quality of life and continued involvement in activities that they value.

- 1.6.5.6 Patients with MSCC should be provided with the equipment and care they require in a timely fashion to maximise their quality of life at home.
- 1.6.5.7 The carer(s) of patients with MSCC who are being discharged home who need to participate in the patient's care, should be offered support and training before discharge.
- 1.6.5.8 Clear pathways for patients with MSCC should be established between hospitals and community-based health and social services teams to ensure that equipment and support for patients returning home are arranged in an efficient and coordinated manner.

2 Notes on the scope of the guidance

NICE guidelines are developed in accordance with a scope that defines what the guideline will and will not cover. The scope of this guideline is available from www.nice.org.uk/guidance/index.jsp?action=byID&o=11648

Groups that will be covered

- Adults with metastatic spinal disease at risk of developing metastatic spinal cord compression.
- Adults with suspected and diagnosed spinal cord and nerve root compression due to metastatic malignant disease.
- Adults with primary malignant tumours (for example, lung cancer, mesothelioma or plasmacytoma) and direct infiltration that threatens spinal cord function.

Groups that will not be covered

- Adults with spinal cord compression due to primary tumours of the spinal cord and meninges.
- Adults with spinal cord compression due to non-malignant causes.
- Adults with nerve root tumours compressing the spinal cord.
- Children.

How this guideline was developed

NICE commissioned the National Collaborating Centre for Cancer to develop this guideline. The Centre established a Guideline Development Group (see appendix A), which reviewed the evidence and developed the recommendations. An independent Guideline Review Panel oversaw the development of the guideline (see appendix B).

There is more information in the booklet: 'The guideline development process: an overview for stakeholders, the public and the NHS' (third edition, published April 2007), which is available from www.nice.org.uk/guidelinesprocess or from NICE publications (phone 0845 003 7783 or email publications@nice.org.uk and quote reference N1233).

3 Implementation

The Healthcare Commission assesses the performance of NHS organisations in meeting core and developmental standards set by the Department of Health in 'Standards for better health' (available from www.dh.gov.uk).

Implementation of clinical guidelines forms part of the developmental standard D2. Core standard C5 says that national agreed guidance should be taken into account when NHS organisations are planning and delivering care.

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

[NICE to amend list as needed at time of publication]

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

4 Research recommendations

The Guideline Development Group has made the following recommendations for research, based on its review of evidence, to improve NICE guidance and patient care in the future. The Guideline Development Group's full set of research recommendations is detailed in the full guideline (see section 5).

4.1 *Reasons for delayed presentation*

Further research should be undertaken into the reasons why patients with MSCC present late.

Although it is clear from the existing evidence that many patients with MSCC present late, often with established and irreversible neurological problems or a long preceding history of symptoms, the reasons for this are not understood.

4.2 *Use of radiotherapy in the prevention of MSCC*

The use of radiotherapy to prevent the development of MSCC in patients with identified spinal metastases but no pain should be investigated in prospective randomised trials.

There is currently no reliable evidence whether or not the use of prophylactic radiotherapy can prevent the subsequent development of MSCC in patients with known metastases in the spine but no pain.

4.3 *Use of surgery in the prevention of MSCC*

The use of surgery to prevent the development of MSCC in patients with identified spinal metastases but no pain should be investigated in prospective randomised trials.

There is currently no reliable evidence whether or not the use of prophylactic surgery can prevent the subsequent development of MSCC in patients with known metastases in the spine but no pain.

4.4 *Management of MSCC*

Further research should investigate what are the most clinically and cost effective regimens of radiotherapy to treat patients with established MSCC and investigate the use of new techniques, such as IMRT.

Currently there is insufficient high-quality evidence of effect of different regimens of radiotherapy to treat patients with established MSCC. In order to evaluate the effects of different regimens of radiotherapy, more randomised controlled trials are required. There is no evidence that evaluates new techniques, such as IMRT in patients with MSCC.

4.5 *Use of vertebroplasty and kyphoplasty in preventing MSCC*

The use of vertebroplasty and kyphoplasty in preventing MSCC in patients with vertebral metastases should be investigated in prospective, comparative studies.

These procedures have been investigated in observational studies without comparators and largely in patients with osteoporotic vertebral collapse. There is limited evidence about their use in patients with MSCC.

5 Other versions of this guideline

5.1 *Full guideline*

The full guideline, 'Metastatic spinal cord compression: diagnosis and management of adults at risk of or with metastatic spinal cord compression' contains details of the methods and evidence used to develop the guideline. It is published by the National Collaborating Centre for Cancer, and is available from <http://www.wales.nhs.uk/sites3/home.cfm?orgid=432>, our website (www.nice.org.uk/CGXXXfullguideline) and the National Library for Health (www.nlh.nhs.uk). **[Note: these details will apply to the published full guideline.]**

5.2 Quick reference guide

A quick reference guide for healthcare professionals is available from www.nice.org.uk/CGXXXquickrefguide

For printed copies, phone NICE publications on 0845 003 7783 or email publications@nice.org.uk (quote reference number N1XXX). **[Note: these details will apply when the guideline is published.]**

5.3 'Understanding NICE guidance'

Information for patients and carers ('Understanding NICE guidance') is available from www.nice.org.uk/CGXXXpublicinfo

For printed copies, phone NICE publications on 0845 003 7783 or email publications@nice.org.uk (quote reference number N1XXX). **[Note: these details will apply when the guideline is published.]**

We encourage NHS and voluntary sector organisations to use text from this booklet in their own information about metastatic spinal cord compression.

6 Related NICE guidance

Published

Improving outcomes for people with brain and other CNS tumours. NICE cancer service guidance (2006). Available from www.nice.org.uk/csgbraincns

Improving outcomes for people with sarcoma. NICE cancer service guidance (2006). Available from www.nice.org.uk/csgsarcoma

Referral guidelines for suspected cancer. NICE clinical guideline 27 (2005). Available from www.nice.org.uk/CG027

Improving supportive and palliative care for adults with cancer. NICE cancer service guidance (2004). Available from www.nice.org.uk/csgsp

7 Updating the guideline

NICE clinical guidelines are updated as needed so that recommendations take into account important new information. We check for new evidence 2 and 4 years after publication, to decide whether all or part of the guideline should be updated. If important new evidence is published at other times, we may decide to do a more rapid update of some recommendations.

Appendix A: The Guideline Development Group

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Mr Alistair Stirling (Lead clinician)

Consultant Orthopaedic Spinal Surgeon, The Royal Orthopaedic Hospital, Birmingham

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Appendix B: The Guideline Review Panel

The Guideline Review Panel is an independent panel that oversees the development of the guideline and takes responsibility for monitoring adherence to NICE guideline development processes. In particular, the panel ensures that stakeholder comments have been adequately considered and responded to. The panel includes members from the following perspectives: primary care, secondary care, lay, public health and industry.

John Hyslop (Chair)

Consultant Radiologist, Royal Cornwall Hospital NHS Trust

Ash Paul

Deputy Medical Director, Health Commission Wales

Liam Smeeth

Professor of Clinical Epidemiology, London School of Hygiene and Tropical Medicine

Peter Gosling

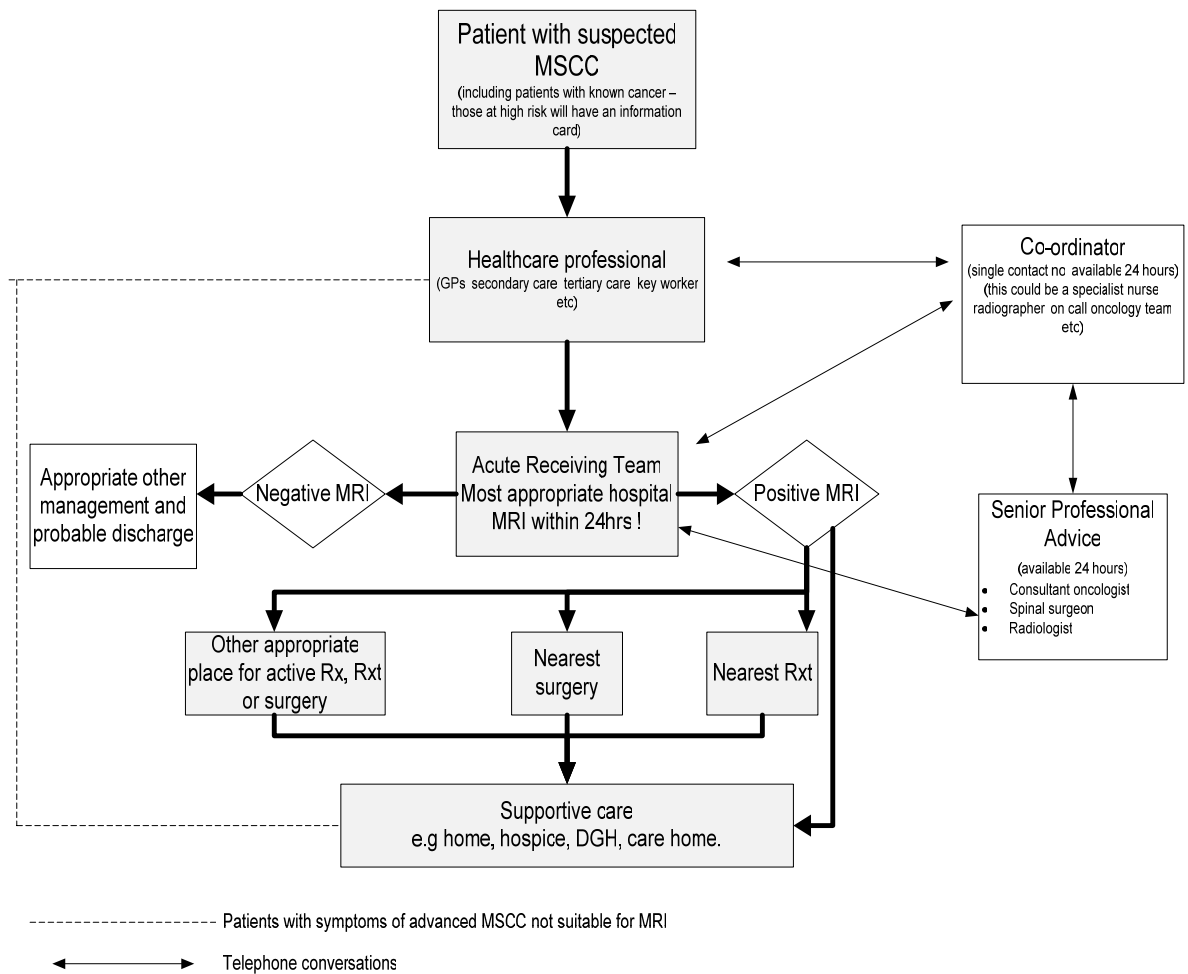
Lay Member

Jonathan Hopper

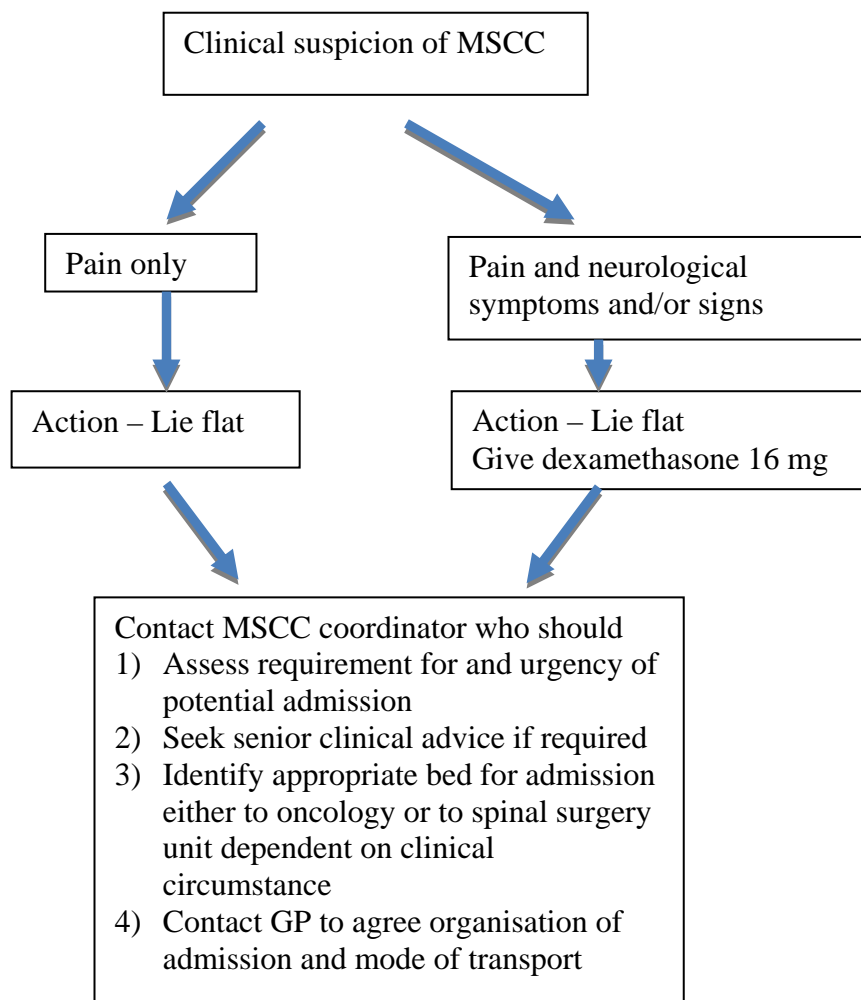
Medical Director (Northern Europe), ConvaTec Ltd

Appendix C: The algorithms

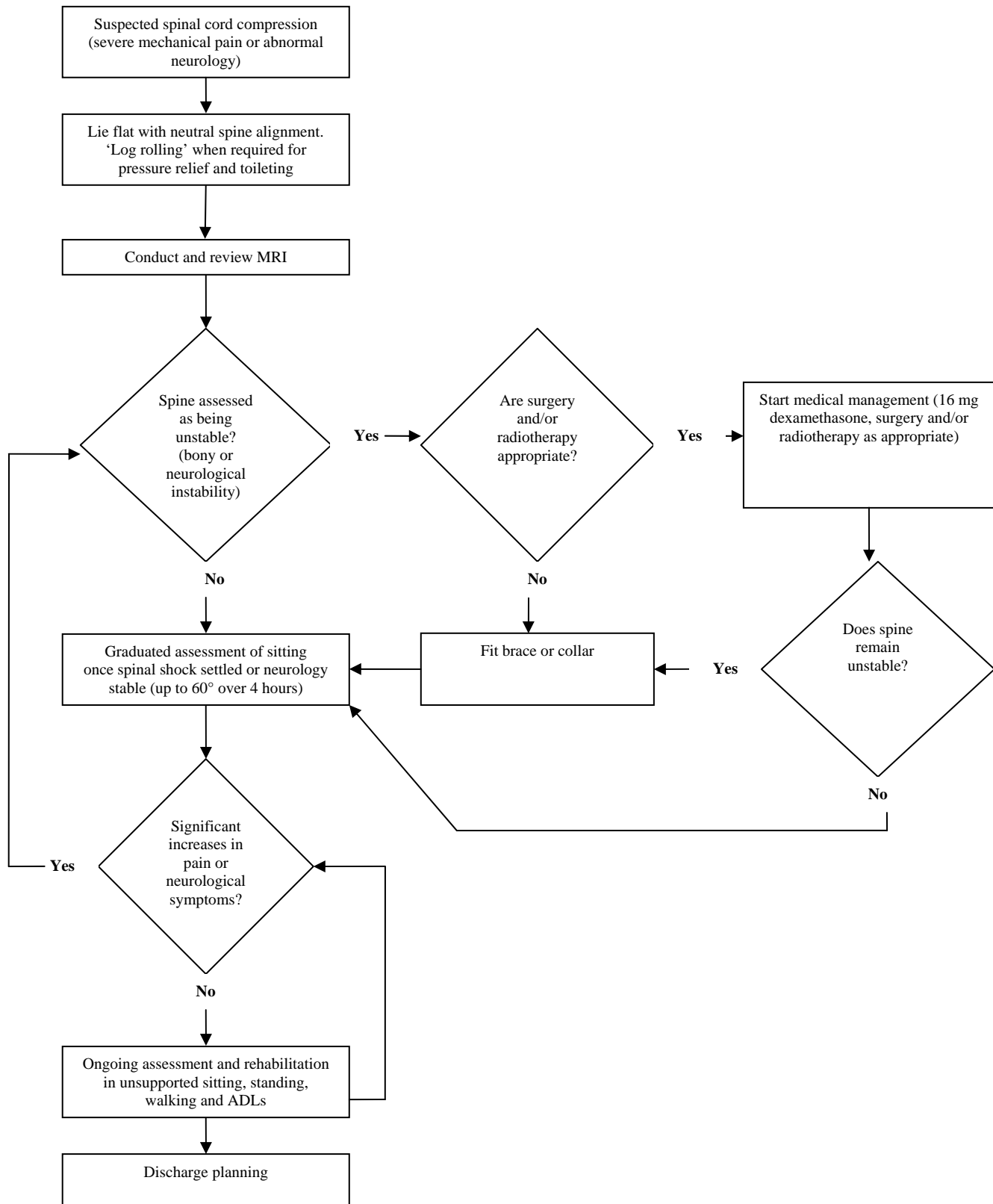
DECISION FLOWCHART



Flow diagram for primary care management of MSCC



Flow chart for decisions about the timing and safety of mobilisation once MSCC suspected



Management of autonomic dysreflexia (AD)

