Quick reference guide

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Diabetic foot problems

Inpatient management of diabetic foot problems

January 2012
The section of the care pathway ‘Within 24 hours of the patient being admitted or a foot problem being detected (if the patient is already in hospital)’ on page 6 has been amended to reflect recommendation 1.2.9 more accurately.
About this booklet
This is a quick reference guide that summarises the recommendations NICE has made to the NHS in ‘Diabetic foot problems: inpatient management of diabetic foot problems’ (NICE clinical guideline 119).

Who should read this booklet?
This quick reference guide is for diabetologists, physicians, surgeons, diabetes nurse specialists, podiatrists, tissue viability nurses and other staff who care for inpatients with diabetic foot problems.

Who wrote the guideline?
The guideline was developed by the Centre for Clinical Practice at NICE, following the short clinical guidelines process. The Centre worked with an independent group of healthcare professionals (including consultants, podiatrists and nurse specialists), patients and carers, and technical staff, who reviewed the evidence and drafted the recommendations. The recommendations were finalised after public consultation.

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

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

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

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

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

The feet of people with diabetes can be affected by neuropathy, peripheral arterial disease, foot deformity, infections, ulcers and gangrene. Diabetic foot problems require urgent attention. A delay in diagnosis and management increases morbidity and mortality and contributes to a higher amputation rate (Reiber et al, 1999). There is variation in practice in the inpatient management of diabetic foot problems due to a range of factors, including differences in the organisation of care between patients’ admission to an acute care setting and discharge. The short clinical guideline ‘Inpatient management of diabetic foot problems’ aims to provide guidance on the key components of inpatient care of people with diabetic foot problems from hospital admission onwards.

Patient-centred care

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

The following recommendations have been identified as key priorities for implementation.

**Multidisciplinary foot care team**

- Each hospital should have a care pathway for patients with diabetic foot problems who require inpatient care.
- The multidisciplinary foot care team should consist of healthcare professionals with the specialist skills and competencies necessary to deliver inpatient care for patients with diabetic foot problems.
- The multidisciplinary foot care team should normally include a diabetologist, a surgeon with the relevant expertise in managing diabetic foot problems, a diabetes nurse specialist, a podiatrist and a tissue viability nurse, and the team should have access to other specialist services required to deliver the care outlined in this guideline.
- The multidisciplinary foot care team should:
  - assess and treat the patient’s diabetes, which should include interventions to minimise the patient’s risk of cardiovascular events, and any interventions for pre-existing chronic kidney disease or anaemia (please refer to ‘Chronic kidney disease’ [NICE clinical guideline 73] and ‘Anaemia management in people with chronic kidney disease’ [NICE clinical guideline 114])
  - assess, review and evaluate the patient’s response to initial medical, surgical and diabetes management
  - assess the foot, and determine the need for specialist wound care, debridement, pressure off-loading and/or other surgical interventions
  - assess the patient’s pain and determine the need for treatment and access to specialist pain services
  - perform a vascular assessment to determine the need for further interventions
  - review the treatment of any infection
  - determine the need for interventions to prevent the deterioration and development of Achilles tendon contractures and other foot deformities
  - perform an orthotic assessment and treat to prevent recurrent disease of the foot
  - have access to physiotherapy
  - arrange discharge planning, which should include making arrangements for the patient to be assessed and their care managed in primary and/or community care, and followed up by specialist teams. Please refer to ‘Type 2 diabetes: prevention and management of foot problems’ (NICE clinical guideline 10).

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1 The term ‘diabetic foot problems requiring inpatient care’ refers to people with diabetes who have i) an ulcer, blister or break in the skin of the foot; ii) inflammation or swelling of any part of the foot, or any sign of infection; iii) unexplained pain in the foot; iv) fracture or dislocation in the foot with no preceding history of significant trauma; v) gangrene of all or part of the foot. Diabetes UK (2009): ‘Putting feet first: commissioning specialist services for the management and prevention of diabetic foot disease in hospitals’.

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**Patient information and support**
- The patient should have a named contact\(^2\) to follow the inpatient care pathway and be responsible for:
  - offering patients information about their diagnosis and treatment, and the care and support that they can expect
  - communicating relevant clinical information, including documentation prior to discharge, within and between hospitals and to primary and/or community care.

**Initial examination and assessment**
- Remove the patient's shoes, socks, bandages and dressings and examine their feet for evidence of:
  - neuropathy
  - ischaemia
  - ulceration
  - inflammation and/or infection
  - deformity
  - Charcot arthropathy.
  
  Document any identified new and/or existing diabetic foot problems.

- Obtain urgent advice from an appropriate specialist if any of the following are present:
  - Fever or any other signs or symptoms of systemic sepsis.
  - Clinical concern that there is a deep-seated infection (for example palpable gas).
  - Limb ischaemia.

**Care: within 24 hours of a patient with diabetic foot problems being admitted to hospital, or the detection of diabetic foot problems (if the patient is already in hospital)**
- Refer the patient to the multidisciplinary foot care team within 24 hours of the initial examination of the patient's feet. Transfer the responsibility of care to a consultant member of the multidisciplinary foot care team if a diabetic foot problem is the dominant clinical factor for inpatient care.

**Investigation of suspected diabetic foot infection**
- If osteomyelitis is suspected and initial X-ray does not confirm the presence of osteomyelitis, use magnetic resonance imaging (MRI). If MRI is contraindicated, white blood cell (WBC) scanning may be performed instead.

**Management of diabetic foot infection**
- Each hospital should have antibiotic guidelines for the management of diabetic foot infections.

**Management of diabetic foot ulcers**
- When choosing wound dressings, healthcare professionals from the multidisciplinary foot care team should take into account their clinical assessment of the wound, patient preference and the clinical circumstances, and should use wound dressings with the lowest acquisition cost.

\(^2\) This may be a member of the multidisciplinary foot care team or someone with a specific role as an inpatient pathway coordinator.
Care pathway

Multidisciplinary foot care team:
- Each hospital should have an inpatient care pathway, managed by a multidisciplinary foot care team.
- The team should consist of healthcare professionals with the specialist skills to deliver inpatient care, including a diabetologist, a surgeon with the relevant expertise in managing diabetic foot problems, a diabetes nurse specialist, a podiatrist and a tissue viability nurse, and the team should have access to other specialist services needed to deliver the care outlined in the guideline.
- The multidisciplinary foot care team should:
  - assess and treat the patient's diabetes, which includes minimising the risk of cardiovascular events, and interventions for pre-existing chronic kidney disease or anaemia
  - assess, review and evaluate the patient's response to initial medical, surgical and diabetes management
  - assess the foot, and determine the need for specialist wound care, debridement, pressure off-loading and/or other surgical interventions
  - assess the patient's pain and determine the need for treatment and access to specialist pain services
  - perform a vascular assessment to determine the need for further interventions
  - review the treatment of any infection
  - assess the need for interventions to prevent the deterioration and development of foot deformities
  - perform an orthotic assessment and treat to prevent recurrent disease of the foot
  - have access to physiotherapy
  - arrange discharge planning.

Patient information and support:
- Offer patients consistent, relevant information and clear explanations that support informed decision making, and provide opportunities for them to discuss issues and ask questions.
- Patients should have a named contact to provide information and to liaise between secondary and primary and/or community care.

Within 24 hours of the patient being admitted or a foot problem being detected (if the patient is already in hospital)
- A named consultant should be accountable for the care of the patient and for ensuring that healthcare professionals provide timely care.
- Refer the patient to the multidisciplinary foot care team within 24 hours of the initial examination of the patient's feet. Transfer the responsibility of care to a consultant member of the multidisciplinary foot care team if a diabetic foot problem is the dominant clinical factor for inpatient care.

Initial examination and assessment

Examine the feet and record details of new and/or existing foot problems.
Examine the patient for signs and symptoms of systemic sepsis.
X-ray the affected foot (or feet).

If you suspect the following, obtain advice from an appropriate specialist:
- Charcot arthropathy
- systemic sepsis
- a deep-seated infection
- limb ischaemia.

Use pressure-relieving support surfaces and strategies in line with 'Pressure ulcers' (NICE clinical guideline 29).
**Diabetic foot ulcers**

**Investigation**
Record the size and depth of the ulcer. Assess and record any signs of infection, ischaemia, neuropathy, gangrene or deformity.

**Management**
Debridement should only be done by healthcare professionals from the multidisciplinary foot care team using the technique that best matches their expertise, clinical experience, patient preference and site of the ulcer.

When choosing wound dressings, healthcare professionals from the multidisciplinary foot care team should take into account the wound, patient preference and the clinical circumstances, and should use wound dressings with the lowest acquisition cost.

Offer off-loading. Healthcare professionals from the multidisciplinary foot care team should take into account the wound, patient preference and the clinical circumstances, and should use the technique with the lowest acquisition cost.

Use pressure-relieving support surfaces and strategies in line with NICE clinical guideline 29.

**Interventions not recommended**
Negative pressure wound therapy, unless in the context of a clinical trial or as rescue therapy (when the only other option is amputation).

Dermal or skin substitutes, electrical stimulation therapy, autologous platelet-rich plasma gel, regenerative wound matrices, deltaparin, growth factors, hyperbaric oxygen therapy, unless in the context of a clinical trial.

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**Diabetic foot infection**

**Investigation**
Send a deep soft tissue sample (or a superficial swab) for microbiological examination.

If you suspect osteomyelitis but the initial X-ray was not diagnostic, carry out magnetic resonance imaging (MRI) or white blood cell scanning if MRI is contraindicated.

**Management**
Start antibiotic therapy based on infection severity, using the antibiotic with the lowest acquisition cost appropriate for the clinical situation. Take into account local antibiotic guidelines as well as the microbiology results.

Do not delay starting therapy for suspected osteomyelitis pending MRI results.

For mild infections, offer oral antibiotics with activity against Gram-positive organisms.

For moderate and severe infections, offer antibiotics with activity against Gram-positive and Gram-negative organisms, including anaerobic bacteria. For moderate infections use oral or intravenous; for severe infections start with intravenous and then reassess.

**Interventions not recommended**
- **Investigation**
  - X-rays or probe-to-bone testing to exclude osteomyelitis.
  - Bone scans to diagnose osteomyelitis.
- **Management**
  - Prolonged antibiotic therapy for mild soft tissue infections.

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**Suspected limb ischaemia**

**Investigation**
Obtain a history of any previous cardiovascular events and symptoms, including treatments and/or procedures.

Inspect the limb for colour and temperature, gangrene or tissue loss and presence or absence of a peripheral pulse.

Measure and document the ankle–brachial pressure where clinically possible and interpret the results carefully.

Arrange prompt specialist assessment.
Further information

Ordering information
You can download the following documents from www.nice.org.uk/guidance/CG119

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

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

- N2467 (quick reference guide)
- N2468 (‘Understanding NICE guidance’).

Implementation tools
NICE has developed tools to help organisations implement this guidance (see www.nice.org.uk/guidance/CG119).

Related NICE guidance
NICE has published clinical guidelines on type 1 and type 2 diabetes, surgical site infection, pressure ulcers, chronic kidney disease, anaemia management in people with chronic kidney disease, lipid modification, acutely ill patients in hospital, venous thromboembolism, and preoperative tests. NICE is developing public health guidance on preventing pre-diabetes in adults, preventing the progression from pre-diabetes, and a clinical guideline on lower limb peripheral arterial disease. For information about NICE guidance that has been issued or is in development, see www.nice.org.uk

Updating the guideline
This guideline will be updated as needed, and information about the progress of any update will be available at www.nice.org.uk/guidance/CG119

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