

In partnership with



Diabetes



Putting feet first

Commissioning specialist services for the management and prevention of diabetic foot disease in hospitals

This report is supported by:

Association of British Clinical Diabetologists
Foot in Diabetes UK
Joint British Diabetes Societies Inpatient Working Group
National Diabetes Inpatient Specialist Nurse Group
Primary Care Diabetes Society
Scottish Diabetes Foot Action Group
Society of Chiropodists and Podiatrists
The Vascular Society of Great Britain and Ireland
Welsh Endocrine and Diabetes Society



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Preface

Diabetes is one of the biggest health challenges facing the UK today. There are 2.5 million people already diagnosed with diabetes in the UK and up to half a million people have the condition but are not aware of it. Diabetes is a serious condition that can lead to life-shattering complications of heart disease, stroke, kidney failure, blindness and amputation. Delivery of safe, clinically effective and person centred care is an essential part of achieving the aspirations of the NHS Next Stage Review¹.

Disease of the foot is a complication of diabetes caused by damage to the nerves and blood vessels that serve the limbs, but worryingly one in three people with diabetes do not realise that having the condition puts them more at risk of having an amputation².

It is reported that up to 100 people a week in the UK have a limb amputated as a result of diabetes³. People at highest risk are those

who have a previous history of ulcers, neuropathy or nerve damage and circulatory problems. Foot ulcers and other changes need to be assessed as soon as possible by an expert team. The longer they are left untreated, the greater the risk of deterioration and loss of the limb, with all the resultant adverse effects on mobility, disfigurement, mood and independence.

Diabetes UK is pleased to have been working together with partners to produce this guidance to enable proper management of acute onset, or deteriorating, disease of the diabetic foot – and prevent amputation. Commissioners need to work together with providers, healthcare professionals and people with diabetes within local diabetes networks to deliver high quality integrated care. The consequences of diabetic foot disease are far reaching, and it must not be ignored.



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1. High Quality Care For All. NHS Next Stage Review Final Report. June 2008. Department of Health
2. Statistics taken from an Ipsos MORI poll carried out for Diabetes UK in September 2007
3. Statistics taken from The Diabetic Foot Guide by the National Diabetes Support Team, 2006

1. Executive summary

This report has been produced by the Diabetes UK specialist foot care services working group June 2008. The specification of specialist services for the management and prevention of diabetic foot disease is one that should be adopted by all hospitals providing emergency medical care. Those hospitals that lack such services should have a local development and implementation plan in place to ensure that any diabetic foot disease is managed optimally in every patient admitted to their care.

Principles

- Simple visual examination of both feet on presentation is an essential part of the management of all people with diabetes who are admitted to hospital.
- A significant number of people with diabetes develop an avoidable foot problem during their hospital stay.
- Diabetic foot problems are the most common cause of amputation in the UK. Such amputations can often be avoided.
- All active disease of the foot in patients with diabetes requires a relevant history to be taken and a thorough examination.
- The potential threat of all active disease of the foot should be recognised by non-specialist healthcare professionals.
- If any person shows signs of active disease of the foot the advice of a healthcare professional, or team, with specialist skills in the management of the foot in diabetes should be requested.
- People with active disease of the foot in diabetes (and, when relevant, their families) should be at the centre of the decision-making process, having access to accurate information and support and effective communication with the specialist foot care team.

Pathway of care of those admitted to hospital for active disease of the foot

- Management falls into three phases:
 - (i) Immediate care – management within the first four hours of admission
 - (ii) Second phase care – management between 4 and 48 hours
 - (iii) Continuing specialist care.
- All professionals responsible for the management of emergencies should ensure that Immediate and Second phase care is conducted according to defined procedures.
- There should be an identified specialist team available for the assessment of all new or deteriorating disease of the foot and the patient should be referred to them within one working day.

Prevention of the onset of new foot disease in patients admitted to hospital for unrelated reasons

- All hospitals should have procedures in place to ensure that each patient with diabetes who is admitted to hospital with unrelated disease has the risk of new onset foot disease assessed. The appropriate preventive measures should then be implemented both while in hospital, and on discharge.
- These procedures should include a mechanism for ongoing audit.
- These procedures should include special reference to the prevention of foot disease in patients with established renal failure.

2. Introduction to the working group

Group membership

Dr Sue Benbow (Diabetologist, Liverpool)

Dr Tony Berendt (Infectious Diseases, Oxford)

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Mrs Louise Stuart MBE (Consultant Podiatrist, Manchester PCT) Secretary

Mr John Timmons (Tissue Viability, Aberdeen)

Ms Bridget Turner (Diabetes UK) Facilitator

Dr Bob Young (Diabetologist, Salford)

The content of the report has also been informed by discussion among a specially convened group of user representatives.

Diabetes UK would like to thank all those involved in the development of this report and related resources. In addition, the working group would like to thank all organisations, who support this report.

3. Background

The aim of the group was to draw up a specification for the proper management of active (acute onset or deteriorating) disease of the diabetic foot in secondary care. This would embrace the standards of care required for both inpatients and outpatients, as well as the services and skills necessary to deliver them. The Report is designed to complement the National Minimum Skills Framework for Commissioning of Foot Care Services for People with Diabetes (2006), and centres on the management of patients admitted to hospital, although many patients with active disease of the foot can be treated as outpatients by specialist services.

4. Definition of foot disease

Active foot disease may be either of recent onset or chronic but deteriorating.

The term refers to anyone with diabetes who has:

- an ulcer, blister or break in the skin of the foot
- inflammation or swelling of any part of the foot, or any sign of infection
- unexplained pain in the foot
- fracture or dislocation in the foot with no preceding history of significant trauma
- gangrene of all or part of the foot.

5. Principles and requirements

For the proper management of acute onset, or deteriorating, disease of the foot in diabetes principles and requirements need to be followed and in place.

Principles

- Diabetic foot complications are the most common cause of amputation in the UK. Such amputations can often be avoided.
- All active disease of the foot in patients with diabetes requires a relevant history to be taken and a thorough examination.
- The potential threat of all active disease of the foot should be recognised by non-specialist healthcare professionals.
- If any person shows signs of active disease of the foot the advice of a healthcare professional, or team, with specialist skills in the management of the foot in diabetes should be requested.
- People with active disease of the foot in diabetes (and, when relevant, their families) should be at the centre of the decision-making process, having access to accurate information and support and effective communication with the specialist foot care team.

Requirements

- Hospitals must have an identified person or team with the specialist skills necessary to assess and manage disease of the foot in diabetes, and the identity of that person or team must be known by non-specialist healthcare professionals.
- Healthcare providers and commissioners should agree a pathway for optimal care of patients presenting with active disease of the foot.

- The person or team with specialist skills in the management of the foot in diabetes should be available to assess foot disease within one working day.
- Effective management of disease of the foot in diabetes requires effective integration of the input of different healthcare professionals, who together have the skills necessary to assess and treat foot lesions. Such skills include those needed for proper assessment and treatment of different lesions of the foot, including the appropriate use of antibiotics, debridement, wound management, revascularisation, other surgery and off-loading.
- Effective management of acute disease of the foot requires ready availability of microbiological support, imaging (X-ray, MRI and CT), and facilities for pressure area off-loading (by fibreglass casting or equivalent, and orthotics).

Implementation plan

The specification of specialist services for the management and prevention of diabetic foot disease is one that should be adopted by all hospitals providing emergency medical care. Those hospitals that lack such services should have a local development and implementation plan to ensure that any diabetic foot disease is managed optimally in every patient admitted to their care.



6. Pathway of care

(i) Immediate care: Management within the first four hours of admission

Responsibility

The responsibility for immediate care rests with those managing the treatment of emergency admissions.

Site

Management would usually be centred in the area devoted to emergency care.

Examination and assessment of the feet

- Bandages and dressings should be removed.
- The affected foot must be assessed for clinical signs of infection or other inflammation, fracture or dislocation and limb-threatening ischaemia.
- The arterial circulation must be assessed clinically.
- Distal sensory neuropathy should be defined or excluded clinically.
- Renal function should be assessed.
- Arrange urgent X-ray if there is any suspicion of bone infection, fracture or dislocation, or if the foot is inflamed.
- Those without signs of infection, other inflammation, fracture or dislocation should have their wounds dressed, with arrangements made for off-loading when indicated.
- Steps must be taken to reduce the chances of pressure ulcers developing in those who are bed-bound.

Management of patients with signs of foot infection

- Urgent advice is needed from an experienced surgeon if there is:
 - (i) palpable gas in the tissues or extensive gas visible on X-ray

(ii) evidence of an abscess

(iii) extensive spreading soft tissue infection

(iv) fever or other signs of systemic inflammatory response.

- Deep samples for microbiological analysis (pus, soft tissue or bone, if indicated) should be obtained at the time of any surgery.
- Venous blood samples should be taken for culture, CRP, U and E, eGFR, FBC and other tests as appropriate.
- Samples should be taken for microbiological examination, including pus, deep soft tissue, wound aspirate or extruded bone. Note that analysis of a surface swab may provide information of only limited value.
- Administer antibiotics (usually intravenously) with activity against Gram positive cocci if the infection is new and limited in extent. If the infection is extensive, if the tissue is devitalised and/or the patient has already received antibiotic therapy, administer agents (usually intravenously) with activity against Gram positive and Gram negative organisms, including anaerobic bacteria. Each Trust should have antibiotic guidelines specifically for the management of diabetic foot infections.
- Ensure good glycaemic control and appropriate systemic support. The diabetes specialist team should be involved as soon as possible to agree a care plan for glycaemic control and to support the patient and staff in other areas of disease management.

Management of critical limb ischaemia

An experienced vascular surgeon must assess patients with symptoms and signs of critical limb ischaemia as soon as possible. Critical limb ischaemia with redness and pain may be misdiagnosed as soft tissue infection. Note that the new onset of gangrene of

a digit or of the forefoot is often precipitated by soft tissue infection, even though the signs of inflammation may be attenuated by coincidental peripheral arterial disease.

Provision of accurate information for the patient and the family

Many patients and their families will be very worried by the possibility of major amputation, even though this may not be expressed.

(ii) Second phase care: up to 48 hours

Responsibility

The responsibility will remain with the admitting team until care is transferred to a team with specialist interest in the management of disease of the foot.

Site

If disease of the foot is the dominant clinical problem, the patient should be transferred as soon as possible to an area defined and equipped for its expert management.

Continuing management

- Review of the results of investigations.
- Assessment of the response to emergency management and adjustment of therapy when necessary.
- Seeking the advice of a member of the specialist team responsible for the management of disease of the foot.
- Agreement of details of the second phase of management and the transference of care.
- Provision of accurate information for the patient and the family.

(iii) Continuing specialist care of active disease of the foot

Responsibility

Responsibility for care of the foot rests with the team with specialist skills necessary to ensure that management is optimum.

Site

The patient should be managed in an area designated as being equipped with the resources and staff needed for optimal care of the foot.

Components of care

- Expert assessment and review of the response to emergency management.
- Assessment of the need for specialist debridement and the provision of off-loading.
- Assessment of the need for urgent vascular assessment, or other surgical intervention.
- Frequent, regular review of the response to treatment.
- Consideration of orthoses and strategies to prevent recurrent disease of the foot.
- Provision of accurate information for the patient and the family.
- Provision of contact details of representatives of the specialist team.
- Assessment of the other medical and social needs of the patient and their dependants.
- Intervention to minimise cardiovascular risk.
- Liaison with the in-patient diabetes specialist team in the management of general diabetes care.
- Discharge planning should include arrangements for inspection and dressing of ulcers in the community by the patient, carers or community nurses where appropriate.

7. Components of specialist outpatient care

Many patients with active disease of the foot can be successfully managed as outpatients, although this should be supervised by a person or team with specialist expertise. The principles and details of the skills required have been listed in The National Minimum Skills Framework for Commissioning of Foot Care Services for People with Diabetes 2006 (www.diabetes.org.uk/Competencies-feet).

Management of new, or deteriorating, disease

- The principles and components of outpatient management are the same as those of inpatient management, although any antibiotic therapy will usually be administered orally.
- The response of the acute disease to treatment will require frequent assessment over the ensuing days and weeks, and management will need to be adjusted or extended on the basis of progress.

Management of chronic disease

Acute onset disease frequently evolves into a chronic state (including chronic ulceration, gangrene and infection of bone). Chronic foot disease should be managed by a suitably skilled team, according to internationally agreed guidelines (International Working Group on the Diabetic Foot 2007: www.iwgdf.org) and The National Minimum Skills Framework for Commissioning of Foot Care Services for People with Diabetes 2006.

Management of successfully treated foot disease

- Ensure maximum mobility and function.
- Prevent recurrence by appropriate use of podiatry, orthotics and orthopaedic surgery.
- Regular long-term expert surveillance.
- Ensure appropriately urgent management of new acute disease.
- Appropriate long-term management of diabetes and cardiovascular disease in this high risk group.
- Provide accurate information to the patient and their family.
- Provide advice to the patient, their family and professional carers on action to be taken if they develop new disease of the foot.

Prevention of new onset foot disease in patients admitted to hospital for unrelated reasons

- Simple visual examination of both feet on presentation is an essential part of the management of all people with diabetes who are admitted to hospital.
- A significant number of people with diabetes develop an avoidable foot problem during their hospital stay.
- All hospitals should have a defined policy to minimise the advent of new onset foot disease, especially of pressure sores in those who are immobilised.
- This policy should include a mechanism for ongoing audit.
- This policy should include special reference to the prevention of foot disease in patients with established renal failure.

8. Measurement of effectiveness of specialist foot care

It is highly desirable that the effectiveness of specialist care in the management of acute onset disease, chronic disease and prevention, should be assessed on a regular basis and compared with other units. Effective comparison needs careful consideration of population definition and of the reliability of information capture and retrieval. Such assessment can be based on either clinical outcome or aspects of process. The choice of measures will be determined by practicality and priority. The following list is not comprehensive.

Outcome

- Amputation (expressed in terms of total population with diabetes, or total referrals to specialist services for diabetic foot disease). While the incidence of amputation is determined by many factors and only a minority of these can be influenced by specialist management, a fall in the incidence of major amputation (amputation which involves loss of the foot) can reflect the influence of specialist care. The extent of the fall depends, however, on the incidence at baseline. Available data on the incidence of amputation are generally unreliable.
- Incidence of ulcer healing and/or time to healing.
- Survival.
- Being ulcer (or lesion) free at 12 months, with feet intact.
- Functional outcome.
- Patient feedback on satisfaction, experience and health status.

Process

- Number of hospital admissions; length of stay
- Antibiotic use, prevalence of MRSA and MDROs and incidence of *C. difficile*.
- Use of specialist investigations and interventions, (eg imaging, revascularisation, orthopaedic surgery).
- Incidence of new onset foot disease in patients admitted to hospital for unrelated disease. This would involve risk categorisation of each patient and the institution of appropriate preventive measures.



9. Conclusion

The delivery of high quality specialist foot care is an essential component of every local diabetes service. This specification aims to support local efforts to improve foot care services in hospital. It provides a safeguard to all those involved in specialist care for the management and prevention of diabetic foot disease in hospitals and to provide a transparent minimum standard of care.

This resource is supplemented by:

- a poster that shows the pathway to support local implementation (see appendix 1)
- an information card for people with diabetes to inform them of the standards of care they should expect if admitted into hospital with or without foot complications (see *Appendix 2*).

Appendix 1: Poster

Integrated care pathway

The management of acute diabetic foot disease for patients admitted to hospital.

Acute diabetic foot disease is defined as:

- a newly developed ulcer
- inflammation
- swelling
- infection
- acute pain in the absence of trauma.

All patients admitted to hospital with suspected foot emergencies

Immediate care – first 4 hours of admission:

- both feet should be examined for pulses and sensation
- assess the foot for infection
- if there are signs of infection, antibiotics should be given promptly
- if there is unexplained swelling and inflammation of the foot, acute Charcot neuroarthropathy must be considered
- the advice of a specialist diabetes foot care team should be obtained as soon as possible
- the need for urgent surgery should be assessed by an experienced surgeon
- other aspects of diabetes, including glycaemic control, should be attended to.

Second phase care – 4 to 48 hours of admission:

- review of the results of investigations and response to treatment
- consult with specialist diabetes foot care team
- provide accurate information for the patient/family, and general practice, including contact details for those responsible for specialist care
- follow-up by specialist diabetes foot care team as appropriate.

Continuing specialist care of active disease of the foot:

- continued review of emergency management
- assess the need for specialist debridement
- provide appropriate pressure relief
- assess the need for vascular intervention
- optimisation of diabetes care, including glycaemic control and cardiovascular risk reduction
- provide accurate information for patient/family and general practice, including contact details for those responsible for specialist care.



The charity for people with diabetes

A foot problem should be excluded in a person with diabetes presenting with fever or unexplained ill-health.

The contact details of the specialist foot care team should be given to patients with foot ulcers, and their families.



Appendix 2: Information card

Card outer

Diabetes – put your feet first

Top tips: foot care information
for people with diabetes.

Diabetes
UK



Contact details at your: GP

Name: _____ Tel: _____

Podiatrist

Name: _____ Tel: _____

Hospital

Name: _____ Tel: _____

For more information on foot care:
www.diabetes.org.uk

The charity for people with diabetes

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If you go into hospital with a foot problem (eg new pain, inflammation, a sore, a fracture, or an ulcer) you should have:

- it checked by a doctor, nurse or podiatrist immediately
- it checked by a diabetes specialist foot care team within 24 hours
- any dressings changed regularly.

Ask to be referred to an expert foot care team if the problem does not settle rapidly.

Card inner

Diabetes – put your feet first

Foot problems can affect everyone with diabetes. To help you protect your feet, here are some tips you should agree with your healthcare team as part of your care plan.

Keep this information with you and record the contact details of your healthcare team overleaf.

If you have Type 1 or Type 2 diabetes:

- have your feet examined at least once a year
- discuss the results of this examination and ask if there is any reason why you might get a problem with your feet
- learn how you can look after your feet and reduce the chance of problems happening.

If you go into hospital for any reason:

- your feet must be examined by a trained foot care specialist
- your feet should be protected if you have any problems with your circulation, the nerves to your feet, or if you have had a foot problem before
- contact the diabetes specialist team or Patient Advisory Liaison Service if problems arise.



The charity for people with diabetes

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