# Diabetes and the Feet

**Aim(s) and objective(s)**

To provide comprehensive foot care for all patients with diabetes across NHS Lanarkshire

**Author(s)**

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**User group**

All healthcare professionals who are involved in the treatment or education of patients with diabetes within NHS Lanarkshire.

**Guideline**

Foot related problems are the commonest cause of diabetes-specific admissions to hospital, and the majority of these are avoidable. It is important to outline what standards of foot care the patients of NHS Lanarkshire with diabetes should reasonably expect. Patients are divided into those at low risk, moderate risk and high risk of developing foot ulceration. There are also people with active foot ulcers, Charcot foot and those who have had amputations. This guideline describes what care patients should expect in NHS Lanarkshire depending on which of these categories they fall into.

## Screening of the Diabetic Foot

All patients in Lanarkshire with diabetes should undergo annual foot screening, by a suitably trained Healthcare Professional (HCP)/worker, resulting in risk stratification. This information should be recorded using the evidence-based SCI Diabetes risk tool. The competencies to carry out the task of diabetes foot screening can be gained by completing the on line nationally agreed training program available at [www.diabetesframe.org](http://www.diabetesframe.org)

This screening should involve:

- Checking for any previous amputation
- Palpation of pedal pulses (Posterior Tibial & Dorsalis Pedis)
- Identification of the presence of signs of sensory neuropathy using a 10g monofilament
- Checking for other risk factors which could lead to ulceration such as significant callus, significant structural abnormality, previous ulceration and inability to self care
THE **LOW RISK FOOT IN DIABETES**

All patients identified as ‘Low risk’ should receive verbal and written education targeted at low risk status.

This should include:

- Background information about why and how diabetes may create a risk to their feet
- Advice about how to care for their feet and when to seek help
- Advice about appropriate foot wear
- Advice about how to contact podiatry services if required in an emergency during working hours
- Advice about how to access emergency treatment out with working hours
- Provision of the NHS Scotland ‘Low Risk’ leaflet
- Provision of the NHS Scotland ‘Advice about your footwear’ leaflet if appropriate

**Treatment/management of the low risk foot in diabetes**

All patients identified with ‘Low risk’ status do not generally require a treatment/management plan by a podiatrist. Advice regarding self care and self management plus an annual screening is generally sufficient as long as the patient is aware of what to do and who to contact if they have a problem.

THE **MODERATE RISK FOOT IN DIABETES**

All patients identified as ‘Moderate risk’ should receive verbal and written education targeted at moderate-risk status and be referred to general podiatry services for ongoing surveillance and management.

This should include:

- Background information about why and how diabetes has created a risk to their feet and what their specific risk factor is
- Advice about how to care for their feet and when to seek help
- Advice about appropriate foot wear
- Advice regarding their diagnosed risk factor
- Advice about how to contact podiatry services if required in an emergency during working hours
- Advice about how to access emergency treatment out with working hours
- Provision of the NHS Scotland ‘Moderate risk’ leaflet
- Provision of the NHS Scotland ‘Advice about your footwear’ leaflet

**Assessment of the ‘Moderate risk’ foot in diabetes**

All patients identified as Moderate risk should receive an annual assessment by a general podiatrist which should include screening and the checking of patients risk status. This should then lead to the introduction or review of a treatment/management plan, including reinforcement of education, formulated in consultation with the patient and tailored to suit the patient’s needs. Results should be recorded via SCI Diabetes.
This assessment should involve:

- Checking for any previous amputation
- Palpation of pedal pulses (Posterior Tibial & Dorsalis Pedis)
- Doppler assessment in those with non-palpable pedal pulses
- Identification of the presence of signs of sensory neuropathy using a 10g monofilament, or Neurothesiometer
- Checking for any active ulceration
- Checking for other risk factors which could lead to ulceration such as significant callus, significant structural abnormality, previous ulceration and the inability to self care.
- Assessment for the possible need for orthosis / prescription footwear
- Assessment for the possible need for referral for further specialist intervention e.g. Vascular surgeon

**Treatment/management of the Moderate risk foot in diabetes**

- The general podiatrist will introduce or review an existing treatment /management plan, based on individual needs and formed in partnership with the patient
- General Podiatrists involved in managing/treating moderate-risk diabetes patients should have clear referral pathways to a multidisciplinary diabetes foot clinic in the event of a foot complication, such as an ulcer or suspected Charcot joint

**THE HIGH RISK FOOT IN DIABETES**

All patients identified as ‘High risk’ should receive verbal and written education targeted at high-risk status and be referred to a diabetes specialist podiatrist.

This should include:

- Background information about why and how diabetes creates a risk to feet and what their specific risk factors are
- Advice about how to care for their feet
- Advice about appropriate foot wear
- Advice regarding diagnosed risk factors
- Advice about how to contact podiatry services if required in an emergency during working hours
- Advice about how to access emergency treatment out with working hours
- Provision of the NHS Scotland ‘High risk’ leaflet
- Provision of the NHS Scotland ‘Advice about your footwear’ leaflet

**Assessment of the High risk Foot in Diabetes**

All patients identified as High risk should receive an assessment by a diabetes specialist podiatrist and should include screening to clarify patients risk status as this can change over time. This should then lead to the introduction or review of a treatment /management plan, including reinforcement of education, formulated in consultation with the patient and tailored to suit the patient’s needs. Results should be recorded via SCI Diabetes.
This assessment should involve:

- Checking for any previous amputation
- Palpation of pedal pulses (Posterior Tibial & Dorsalis Pedis)
- Doppler assessment in those with non-palpable pedal pulses
- Identification of the presence of signs of sensory neuropathy using a 10g monofilament, Tuning fork or Neurothesiometer
- Checking for any active ulceration
- Checking for other risk factors such as significant callus, significant structural abnormality, previous ulceration and the inability to self care
- Assessment for the possible need for orthosis / prescription footwear
- Assessment for the possible need for referral for further specialist intervention e.g. vascular surgeon

**Treatment/management of the High Risk foot in Diabetes**

- All patients identified as ‘High Risk’ with no history of diabetes foot complications should attend a diabetes specialist podiatrist to introduce or review an existing treatment /management plan, based on individual needs in partnership with the patient
- All patients identified as ‘High Risk’ with a history of previous ulceration or other diabetes foot related complications, should attend a diabetes specialist podiatrist to introduce or review an existing treatment /management plan, based on individual needs in partnership with the patient. It is recommended that ongoing general podiatry care is also provided. Podiatry care should be provided on a 12 week basis at a minimum but this frequency is dependant on individual patient needs
- All patients with a history of diabetes foot complications should have access to an experienced diabetes orthotist to clarify suitability for orthotics and/or prescription footwear

**ACTIVE FOOT DISEASE IN DIABETES**

**Assessment of Diabetes Foot Ulceration:**

- All patients that present with new diabetes foot ulceration should be referred immediately to a diabetes specialist podiatrist (within one working day)
- All patients with new diabetes foot ulceration that present out of hours contact, NHS 24 or present at an A & E department
- All patients with new/active ulceration should have rapid access to a multidisciplinary diabetes foot clinic (MDFC) locally

**MULTI DISCIPLINARY DIABETES FOOT CLINIC CONTACT DETAILS**

HAIRMYRES HOSPITAL: 01355 585235

MONKLANDS HOSPITAL: 01236 712141

WISHAW GENERAL HOSPITAL: 01698 366359
Treatment/management of Active Foot Disease

All patients with active foot disease within NHS Lanarkshire should be assessed/treated by a member of the multidisciplinary foot team to provide comprehensive treatment/management of their active foot disease.

The following health professionals should be present at every multidisciplinary clinical session:

- Diabetes specialist podiatrist
- Consultant Diabetologist
- Orthotic provision

This team should have rapid access to pressure relieving devices including total contact casts and prefabricated walkers.

There should be available access to:

- Radiology within 24 hours
- Named vascular surgeon
- Named orthopaedic surgeon
- immediate in-patient admission
- Microbiology and appropriate antibiotics
- A range of pressure relief devices
- Diabetes Specialist Nurse
- Diabetes Specialist Dietician

PROTOCOL FOR ANTIBIOTIC TREATMENT OF DIABETIC FOOT ULCERS

General:

- Consider whether antibiotics are needed at all, although have a low threshold for their use
- Use if there is any evidence of local or systemic infection
- Remember that not all diabetic ulcers show classical signs of infection
- Swab all ulcers thoroughly before antibiotic treatment is started by cleaning with saline, removing superficial slough and swabbing as deep as possible
- The collection of good microbiology data is essential in order to treat infection effectively.
- Start antibiotics empirically (review of previous bacteriology results may guide your choice)
- Refer urgently to the MDFC (see previous contact details)
- Infection may be polymicrobial, e.g. a combination of Staph. Aureus and β-haemolytic Streptococcus, sometimes with Pseudomonas or anaerobes particularly if chronic ulceration
- The deeper the ulcer, the more likely it is to have anaerobic infection
- Colonizing organisms such as coliforms and enterococci can usually be ignored
- Always consider dose adjustment for those with renal or hepatic impairment and monitoring requirements

Mild infection (superficial, localised)

- First choice – Flucloxacillin 500 mg four times daily
- Penicillin allergy - Clarithromycin 500 mg twice daily
- If poor tissue perfusion or Group β haemolytic streptococcus increase flucloxacillin to 1000 mg four times daily
- If anaerobic infection suspected – add metronidazole 400 mg three times daily or (if not tolerated) coamoxiclav 625 mg three times daily
- Review antibiotic choice when microbiology results available
• Continue treatment for at least 2 weeks. Longer courses may be appropriate depending clinical response and microbiology results
• Escalate to treatment of Moderate Infection if there are signs of spreading infection (e.g. cellulitis or lymphangitis) or unsatisfactory response to first line therapy
• If there has been no clinical response to first-line antibiotic therapy, the patient has had a hospital admission in the last 12 months or the patient is a Care Home resident consider the possibility of MRSA infection

Moderate infection (deep, spreading)
• Oral therapy may be appropriate if there are no systemic signs of sepsis - clindamycin 300-600 mg four times daily + Ciprofloxacin 750 mg twice daily
• For osteomyelitis consider oral therapy if infection is localised and there are no systemic signs of sepsis – Clindamycin 300-450mg four times daily + Rifampicin 300-600mg twice daily OR + Fusidic Acid 500mg three times daily (as sodium fusidate) or 750mg three times daily (as fucidic acid suspension)
• Admission for IV antibiotic therapy should be considered if there is widespread local infection or deep slough

Always notify the Diabetes Specialist Podiatrist at the first possible opportunity
Seek advice from a consultant microbiologist if there is evidence of worsening sepsis or there is uncertainty about the best choice of antibiotic therapy

MRSA - if this is suspected or confirmed treat as follows
• If there are no clinical signs of infection antibiotic therapy is usually unnecessary
• If there are signs of localised infection treat with a combination of 2 of the following:
  o Rifampicin 300-600mg daily
  o Doxycycline 200mg on the first day then 100mg daily
  o Fusidic Acid 500mg three times daily (as sodium fusidate) or 750mg three times daily (as fucidic acid suspension)
  o Trimethoprim 200mg twice daily
• Ciprofloxacin should be stopped if MRSA is confirmed

Severe infection (signs of systemic infection)
• Admit to hospital for iv antibiotics
• Flucloxacillin 1-2g four times daily + Clindamycin 600mg four times daily + Gentamicin (see NHSL once daily gentamicin dosage and monitoring guidelines)
• If penicillin allergic – Vancomycin (see NHSL vancomycin dosage and monitoring guidelines) + Clindamycin 600mg four times daily + Gentamicin (see NHSL once daily gentamicin dosage and monitoring guidelines)
• If MRSA suspected or confirmed - Vancomycin + Gentamicin + Metronidazole 400mg three times daily

Clostridium difficile
The 4 C antibiotics (clindamycin, ciprofloxacin, co-amoxiclav, cephalosporins) are associated with an increased risk of C difficile. Patients should be counselled regarding the risk of C difficile infection and what action should be taken if diarrhoea develops whilst taking antibiotic therapy.
ALL PATIENTS WITH ACTIVE DIABETES FOOT ULCERATION SHOULD RECEIVE VERBAL AND WRITTEN INFORMATION TARGETED AT FOOT ULCERATION

- Discussion of the individual’s specific foot complication and the potential impact of this
- Advice regarding diagnosed foot disease
- Advice about how to care for and monitor their feet and when to seek help
- Information on dressings and any antibiotic therapy including potential adverse effects
- Advice about appropriate footwear
- Advice about how to contact MDFC if required in an emergency during working hours
- Advice about how to access emergency treatment out with working hours
- Provision of the NHS Scotland ‘Looking after your foot ulcer’ leaflet
- Provision of the NHS Scotland ‘Advice about your footwear’ leaflet

PATIENTS WITH SUSPECTED CHARCOT FEET

Assessment and Treatment/ Management of Suspected Charcot Neuroarthropathy

- All patients that present with a suspected Charcot joint should be referred immediately to a diabetes specialist podiatrist, preferably within a MDFC
- All patients should have rapid access to appropriate diagnostic services (X-ray as well as MRI and/or Isotope Bone Scan)
- All patients should have immediate access to a plaster technician or an appropriately skilled health professional to provide a non-removable off-loading device
- All patients that do not meet the required criteria for a non-removable device should have immediate access to alternate off-loading and immobilisation devices
- Patients should be reviewed by the MDFC at appropriate time intervals to monitor progress, at a minimum every 2 weeks

ALL PATIENTS WITH ACTIVE CHARCOT NEUROARTHROPATHY SHOULD RECEIVE VERBAL AND WRITTEN INFORMATION SPECIFIC TO THE CONDITION

- Discussion of the individual’s specific foot complication and the potential impact of this
- Advice regarding diagnosed Charcot Neuroarthropathy
- Advice about how to care for and monitor their feet and when to seek help
- Advice about managing their non-removable/removable off-loading device
- Advice about how to contact MDFC if required in an emergency during working hours
- Advice about how to access emergency treatment out with working hours
- Provision of NHS Scotland ‘Charcot Foot’ leaflet
PATIENTS WITH MAJOR AMPUTATIONS

Major amputations are defined as any amputation at the ankle or above. For the majority of patients this is usually a trans-tibial or a trans-femoral amputation.

Treatment/management of Diabetes Related Amputation

- All patients with amputations should have rapid access to a rehabilitation service
- All patients with major amputations should be assessed for their suitability for referral to a limb-fitting service
- All patients with amputations regardless of level should be assessed for their suitability for and provision of orthotics and/or prescription footwear by an orthotist skilled in diabetes foot care
- All patients with an amputation should be referred/referred to a diabetes specialist podiatrist for ongoing assessment, treatment/management to care for the contra lateral limb, if appropriate
- All patients should receive ongoing support from the diabetes foot team

IN-PATIENT MANAGEMENT

There are additional requirements for patients who are in-patients. These are laid out in detail in the document “Specialist Services for Management and Prevention of Diabetic Foot Disease in Hospital”, produced by FDUK and Diabetes UK. This is not included in this guideline.

Summary
Summary - Antibiotic Treatment of Diabetic Foot Ulceration

<table>
<thead>
<tr>
<th>Severity of Ulcer</th>
<th>MILD</th>
<th>MODERATE</th>
<th>SEVERE</th>
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<tbody>
<tr>
<td>2 or more features of inflammation – pus, Erythema, pain, warmth, induration</td>
<td>2 or more features of inflammation – pus, Erythema, pain, warmth, induration</td>
<td>Signs of spreading infection with cellulitis or lymphangitis but no systemic illness</td>
<td>Systemic toxicity (fever, shock, vomiting, confusion, metabolic instability) Critical limb ischaemia</td>
</tr>
<tr>
<td>Cellulitis &lt;2cm, confined to skin or subcutaneous tissue</td>
<td>Cellulitis &lt;2cm, confined to skin or subcutaneous tissue</td>
<td>No response to treatment of mild infection</td>
<td>No response to treatment of mild infection</td>
</tr>
<tr>
<td>No systemic illness</td>
<td>No systemic illness</td>
<td>Those with peripheral vascular disease (PVD)</td>
<td>History of amputation</td>
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**Antibiotic Choice**

**Flucloxacillin 500-1000mg four times daily**
- Penicillin allergy: Clarithromycin 500mg twice daily
  - If anaerobic infection suspected add metronidazole 400mg three times daily or co-amoxiclav 625mg three times daily if metronidazole not tolerated

**Clindamycin 300-600mg four times daily**
- Ciprofloxacin 750mg twice daily

**Flucloxacillin 1000-2000mg four times daily**
- Clindamycin 600mg four times daily
  - Gentamicin (see NHSL guideline on once daily dosing and monitoring)

**If MRSA suspected/confirmed**

Prescribe a combination of 2 of the following
1. Rifampicin 300-600mg twice daily
2. Doxycycline 200mg on the first day the 100mg daily
3. Fucidic Acid 500mg three times daily (as sodium fusidate) or 750mg three times daily (as fusidic acid suspension)
4. Trimethoprim 200mg twice daily

Vancomycin (see NHSL guideline for dosing and monitoring)
- Gentamicin (see NHSL guideline for dosing and monitoring)
  - Metronidazole 400mg three times daily
References


**Diabetes MCN endorsement**

May 2014

**Review Date**

May 2017