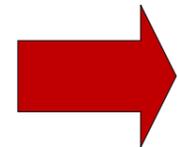


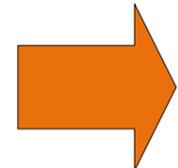
Previous ulceration
or Previous amputation
or Renal replacement therapy
or Neuropathy and Peripheral Arterial Disease (PAD) together
or Neuropathy in combination with callus and/or deformity
or PAD in combination with callus and/or deformity.



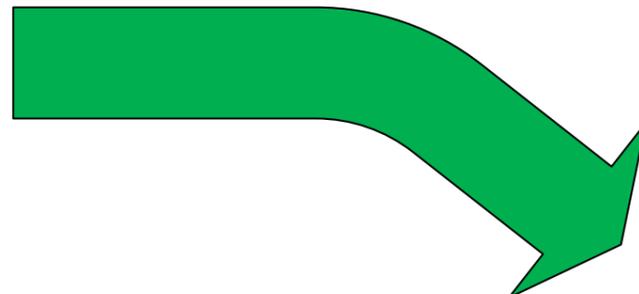
High Risk - Activate CPR for Feet.
Refer to FPS/MDFS
Record outcome in notes



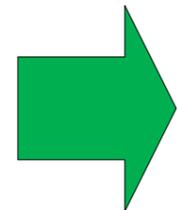
Single risk factor present;
 Deformity
or
 Neuropathy
or
 Peripheral Arterial Disease (PAD)



Moderate Risk - Activate CPR for Feet.
Refer to FPS/MDFS
Record outcome in notes



No risk factors present except callus alone



Annual Screening by suitably trained HCP. (HCA – Consultant)
Agree Self-Management Plan.
Written and Verbal education
<https://portal.e-lfh.org.uk/Component/Details/52266>

Diabetic Foot Risk Assessment

CPR for Feet

C
Check



Check both feet:

- ❖ Are there any breaks in the skin/areas of discolouration?
- ❖ Are there any ulcers present?
- ❖ Is neuropathy present?
- ❖ Is action required?

P
Protect



Protect feet if

- ❖ Pressure damage/ulcer present

or at risk due to:

- ❖ Neuropathy
- ❖ Previous ulcer/pressure damage or amputation
- ❖ Bed bound or fragile skin

R
Refer



Refer all patients with a foot ulcer/pressure damage or other major concern to the podiatry department or Tissue Viability Services for treatment and reassessment of pressure relief requirements.

Tel

Management of the suspected Charcot Foot

Immediate Management Plan

1. **Immobilisation** of the foot is urgently required. Non-removable below knee total contact cast is the method of choice, but following holistic assessment, may not appropriate. Casting should be continued until all signs of inflammation regress – which may not be for many months (SIGN 2001, NICE 2015).
2. **Diagnostic Tests to be carried out:**
 - **Neurovascular assessment**
 - **Bloods (FBC, U&E's, LFT's, CRP, ESR, Urate, Alkaline Phosphatase, HbA1c)**
 - **Weight bearing XR and if this is inconclusive an MRI should be considered**
3. **Non-weight bearing.**
4. **Education** on the causes and management of Charcot foot and advice on prevention of complications. Verbal and written.
5. **Optimise glucose control.**
6. **Record temperature difference between the two feet.**
7. **Start on antibiotics as per micro guidance till infection can be ruled out.**



Medium Term Management Plan

1. **Regular clinical examination** (patient to return within 7 days of initial appointment with MDT and have cast changed as there will be a great decrease in swelling. After this patient to return every 2-4 weeks as suitable) and imaging (serial XR recommended) to monitor progress.
2. Once temperature differences have resolved and are stable for 4 weeks consider use of **removable below knee cast** (bivalve cast for a further 4 weeks and then an aircast till bespoke footwear and insoles are issued to the patient) **and refer to orthotist** at this point as well.
3. Begin **staged return to weight bearing**, in cast, when foot temperature is equal and imaging indicates condition has reached non-destructive phase.
4. If foot remains stable & whilst still using cast, follow with staged introduction of appropriate orthotic device (e.g. boots and foot orthoses).
5. Consider referral to an Orthopaedic surgeon for assessment and discussion of surgical remodelling, if needed.

Long Term Management

1. Pressure relief with footwear and orthotic therapy as appropriate, via specialist podiatrist and orthotist joint working- ongoing
2. Classify patient as high current risk and review regularly in foot protection service (NICE CG 19).
3. Re-refer patient to the MDFT if Charcot reactivates.
4. Consider referral to an Orthopaedic surgeon for assessment and discussion of surgical remodelling, if needed.



Non-Emergency Active Foot Disease

Patients with **non-emergency active diabetic foot problems** should be referred within **one working day** for triage and assessed within 1 further working day to the MDFS or FPS.

Management should be in line with NICE guidelines NG19 – '*Diabetic Foot Problems : prevention and management.*' 2015

Many diabetic feet will have an ischaemic component but will not require emergency admission to the arterial centre. These patients can be managed in non-arterial centres with an urgent review by the vascular team as required. If there is uncertainty about the degree of urgency of the vascular problem, advice should be taken from the on-call network vascular surgeon.

Non-emergency active foot problems. I.e. Foot ulcers that are of neuropathic origin with no vascular compromise (foot pulses present) which may be uninfected or mildly infected. Initial management of foot ulceration at the surgery:

1. Wound care – local wound care.
2. Assess vascular status by checking pulses. Doppler can help qualify flow.
Vascular insufficiency needs to be highlighted when making referral to FPS/MDFS. (see GP referral form)
3. Optimise glycaemic control, using diabetes specialist nurse if necessary at intermediate or secondary care level.
4. Start antimicrobial therapy in line with local **Antibiotic policy (Local)**
5. Advise patient to stay off their feet as much as possible, advise avoidance of tight fitting shoes, keep wound dry i.e. no showers!
6. Make referral (see GP referral form) to FPS/MDFT as per advice on local website/pathway (highlight over 'refer' and link to form).
7. Practice nurses /District nurses to be made aware of the patient for appropriate dressing changes (nb most diabetic foot wounds will need cleaning and dressing changes at least 3x a week, with one of those usually being a podiatry appointment for debridement and offloading. Sometimes alternate/daily day dressings are needed if the wound is wet. **Liase** with FPS/MDFS (For antibiotic treatment see below)
8. **Antibiotics to be used only if demarcated cellulitis around ulcer, or if evidence of systemic infection or osteomyelitis**

Guidance on Diabetic foot infection: antimicrobial prescribing is currently under development and expected to be released 03/10/19.

Start Antibiotics according to local Guidelines

Management of Diabetic Foot Emergencies

If a person has a limb or life-threatening emergency diabetic foot problem, they should be referred immediately to the acute services and transferred to the MDFS within one working day, meeting NICE guidelines. The patient should be assessed and an individualised treatment plan put in place by the acute services. The MDFS will take over care in the time scales specified.

The ischaemic foot

If the admitting medical team is concerned that the foot is threatened **by severe ischaemia, management should be discussed with the on call consultant vascular surgeon and arrangements made for prompt consultation, investigation and transfer of care to the arterial centre, if and when indicated.**

It is important that treatment of ischaemia in the acute diabetic foot is **not delayed**. The above process of MDFS assessment, vascular opinion, imaging and finally a revascularisation procedure should not involve long delays. The urgency will require local assessment by the MDFS and will depend on the presenting symptoms and signs. However, the principal that **any delay runs the risk of on-going tissue damage** must be considered in an effort to minimise tissue loss and reduce the risk of amputation.

There should be clear written vascular network guidelines regarding endovascular interventions at Non-Arterial (NA) Hospitals. These will dictate what interventions can be undertaken locally in the non-arterial centre and those that require transfer to the arterial centre. Providing it does not result in undue delay, patients should be discussed in a vascular multidisciplinary meeting (local or network) in order to plan revascularisation.

Suggested maximum timelines from receipt of referral by the vascular service for urgent endovascular revascularisation at the NA Hospital Trust are:

- a) In-patient MDFS assessment within 24 hours (*NG19 Diabetes Foot Problems: Prevention and Treatment*).
- b) Vascular input and imaging within 48 hours.
- c) Local endovascular revascularisation within 8 days.

If endovascular revascularisation at the non-arterial centre cannot be performed within the required timeframe then the patient should be transferred to the arterial centre for earlier intervention by the emergency vascular team (surgeon and interventional radiologist). In-patients at the non-arterial centre requiring surgical revascularisation should be transferred to the arterial centre without delay.

If the patient is transferred, it is essential that non-vascular aspects of care are considered and treated according to best practice. It is important that the vascular team maintains close and effective communication with both the referring team and members of the MDFS in their own hospital Trust.

Post-surgery, the arrangements for the patient's **prompt transfer, post-operative management, discharge and post-discharge care to the MDFS at the non-arterial centre, need to be discussed and agreed between the teams**. This means that the non-arterial centres need to be in a position to ensure that patients can be repatriated promptly.

NICE Guidance on Diabetic foot infection: antimicrobial prescribing is expected
03/10/19.

Antibiotics interventions to be applied according to local guidelines

A management plan should be made by the MDFT to include: wound care, debridement antibiotics, glycaemic control and off-loading (*NG19 Diabetes Foot Problems: Prevention and Treatment*)

The Multidisciplinary Foot Service (MDFS)

Every hospital Trust should have a MDFS, with experience of managing diabetic foot disease, offering both inpatient and outpatient care to quickly investigate and treat foot disease. This will mainly focus on foot ulcers, infection, ischaemia and Charcot Neuroarthropathy. The team should follow NICE guidance (NG19) and will consist of specialists with skills in the following areas Diabetology, Podiatry, Diabetic Specialist Nurse, Vascular Surgery and Microbiology. The team should have shared responsibility and accountability for patients under its care. Each MDFS should have a nominated clinical lead. This is most likely to be a consultant diabetologist in non-arterial centres and either a diabetologist and/or a vascular surgeon in arterial centres. Protocols will need to be in place to ensure that additional prompt clinical input is available from, Orthopaedic surgery, Biomechanics and orthoses, Interventional radiology, Casting and Wound care.

The desired outcome for this service is to:

- Prevent or delay the foot complications of diabetes, including peripheral neuropathy, peripheral arterial disease, gangrene and limb loss from amputation.
- Provide opportunities for all healthcare professionals who come into contact with people with diabetes to acquire the skills and knowledge necessary to recognise and manage people at increased risk of developing new foot disease.
- Ensure all service users with diabetes receive equitable foot care and management based on their needs.
- Provide a pathway for the regular monitoring and management of foot disease.
- Provide a pathway for the assessment and treatment of any newly occurring or deteriorating case of foot disease within 24 hours.
- Reduce recurrence of ulcers and complications in those who have had an episode of active foot disease
- Reduction of amputations

The Foot Protection Service (FPS)

People with diabetes who are at risk either of developing disease of the foot, or who already have established foot disease, require preventative care directed by specially trained health care professionals. This has been summarised in NICE guidance (NG 19).

The aim of a foot protection service is to prevent first and further ulceration, hospital admission and reduce the risk of lower extremity amputation in those people with diabetes who following foot screening have been identified as having increased (moderate or high) risk for foot ulceration as a result of neuropathy, peripheral disease and foot deformity either in isolation or in combination.

All patients with diabetes who have been identified as at increased risk of developing diabetes related lower limb and foot disease should be referred to a programme of foot protection. This should be delivered by an identified team with appropriate skills in line with the national pathway (Diabetes UK 2012) using best practice guidance (NHS Diabetes 2013)

The team will normally be led and coordinated by a specialist podiatrist and will provide an easily accessible service. This will commonly be based within a community podiatry service but will always be customised to meet the needs of the local economy.

The following will be provided by the Foot Protection Service

- Education of other HCPs in routine examination and definition of the 'at risk' foot
- Specialist surveillance of people with diabetes at increased risk of diabetic foot disease, (including those who are housebound, in residential care or hospital inpatients)
- Negotiation of care plans for the management of common foot problems with people with diabetes at increased risk of diabetic foot disease who are not suitable for self-care

- Sharing the care of people with advanced/severe diabetes related foot disease with the MDFT
- Reviewing , educating and signposting people with diabetes foot disease around their modifiable vascular risks (for example smoking cessation) and offering clear information on potentially modifiable outcomes for life and limb
- Referring for other support, such as social care services.

Liaison

Members of the Foot Protection Service (FPS) who deliver the foot protection programme, need to maintain close liaison with all other HCPs involved in the assessment of foot risk in diabetes, as well as those involved in the management of active foot disease. Contact details for members of the FPS should be readily available to other relevant HCPs, including GPs, District Nurses (DNs) and hospital specialists.

Contact details should also be made available to people with diabetes e.g. on patient accessed websites and supportive health education literature. There must be clear signposting for patients and members of the FPTs towards the services of the specialist MDFT when required. In many cases members of the FPS will also be members of the MDFT. Good practice suggests that a named individual responsible for diabetes within the team helps to facilitate more effective liaison and communication between GPs, practice nurses and specialist diabetes and foot services.

Crisis Response Service

A crisis response service prevents unnecessary hospital admission by providing urgent assessment and provision of community nursing care, in people's own homes.

The service is made up of a team of Nurse Practitioners, Healthcare Assistants, Occupational Therapists, Physiotherapists and night sitters. The service aims to prevent the admission into hospital of those patients who are at high risk of being admitted into hospital, but who would be better suited to be cared for at home. Patients cared for at home will have a suitable care plan initiated for up to 72 hours. After this time, further assessment and support can be arranged as necessary to ensure the patient can remain safely in their own home.

IV Team and Ambulatory Care Team

Where IV antibiotic treatment is required for patients at home, the IV team may be contacted by phone. Local services details should be applied as appropriate.

Clinical Leadership

The service will usually be led by a podiatrist with special training and experience in the field of diabetes. This person will provide information, education and care planning to ensure the coordination of a personalised care plan, agreed by the FPS, other specialist services and the person with diabetes themselves. The leader of the service also has a responsibility for monitoring and audit.

Membership

The Foot Protection Programme will be delivered by HCPs with specialist expertise in the assessment and management of disease of the foot in diabetes. These HCPs will usually be Specialist Podiatrists but may involve other HCPs as required including Orthotists, General Practice Staff, District Nursing and others.

Glossary: Ulcer characteristics- SINBAD Scoring System

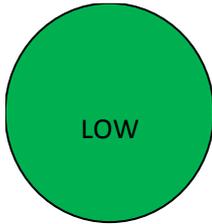
Ulcer characteristics are measured at the first expert assessment by the **Specialist Foot care Service**. Overall **ulcer severity** is recorded using the **SINBAD** scoring system, which scores an ulcer between 0 (least severe) and 6 (most severe) depending on how many of the 6 SINBAD elements are present. The 6 **SINBAD elements** are:

- Site (on hindfoot)** – Ulcer penetrates the hindfoot (rear of the foot). [Y=1 point]
- Ischaemia** – Impaired circulation in the foot. [Y=1 point]
- Neuropathy** – Loss of protective sensation in the foot.[Y=1 point]
- Bacterial infection** – Signs of bacterial infection of the foot (e.g. redness, swelling, heat, discharge). [Y=1 point]
- Area ($\geq 1\text{cm}^2$)** – Ulcer covers a large surface area (1cm^2 or more). [Y=1 point]
- Depth (to tendon or bone)** – Ulcer penetrates to tendon or bone. [Y=1 point]

An ulcer with a SINBAD score of 3 or above is classed as a **severe ulcer**.

An ulcer with a SINBAD score of less than 3 is classed as a **less severe ulcer**.

Charcot foot disease is a type of serious bone deformity associated with neuropathy.



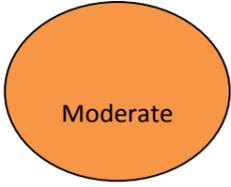
LOW RISK: - No Risk factors. Annual Foot Screening by suitably trained HCP

- Pulses present
- No loss of sensation
- No deformity

Callus alone is considered low risk

How to do an annual foot check:

- Remove shoes and socks/ stockings
- Test foot sensations using 10g monofilament or vibration with a tuning fork
- Palpate foot pulses
- Inspect for any deformity
- Inspect for significant callus
- Check for signs of ulceration
- Ask about any previous ulceration
- Inspect footwear
- Ask about any pain (Rest or walking)
- Tell patient how to look after their feet and provide written information
- Tell patient their risk status and what it means. Explain what to look out for and provide emergency contact numbers



Moderate

MODERATE RISK

Refer to a specialist podiatrist or member of the foot protection service (FPS) and request an assessment within **6–8 weeks**.

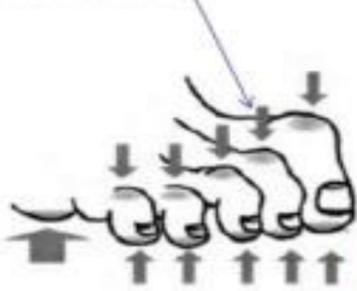
- Thereafter they should be assessed **every 3–6 months** in addition to their annual assessment, by a specialist podiatrist or a member of the FPS.
- Assess feet and lower limbs, then agree a tailored treatment plan.
- Provide written and verbal education with emergency contact numbers.
- Refer for special intervention if/ when required.
- Liaise with other healthcare professionals eg GP as necessary.

MODERATE RISK

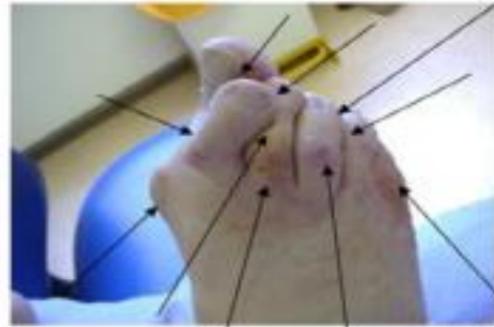
- Deformity or
- Neuropathy (loss of sensation) or
- Peripheral arterial disease.

Deformity

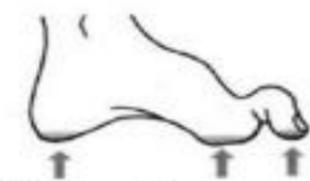
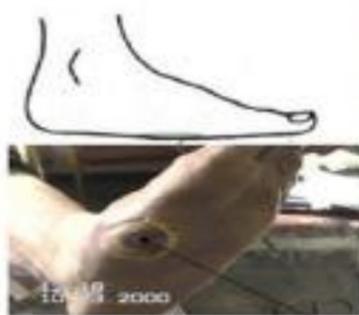
Clawed toes



Interdigital pressure



Flat foot

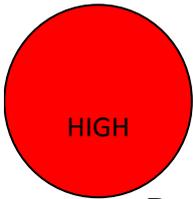


High arch



Hyperextended toe

Cold Charcot



HIGH RISK

- Previous ulceration or previous amputation or on renal replacement therapy (dialysis or transport) or
- Neuropathy (loss of sensation) and lower limb peripheral arterial disease together or
- neuropathy in combination with callus and/or deformity or lower limb peripheral arterial disease in combination with callus and/or deformity

Foot Ulcer



Neuro-Ischaemic foot

