



Diabetes: Foot check



1. Background information

- The risk of foot problems in people with diabetes is increased largely because of either diabetic neuropathy (nerve damage or degeneration) or peripheral arterial disease.¹
- Diabetic foot problems are one of the most feared and most difficult to treat complications of diabetes.
- It has been estimated that 4 out of 5 amputations could be prevented as most are preceded by foot ulcers² which are largely preventable by having in place a patient-specific individualised treatment plan.¹



Guidelines

NICE guidelines state the importance of early identification of the risk of diabetic patients who could go on to develop a diabetic foot problem, ultimately preventing further foot complications such as infection, ulceration or amputation.¹

2. Process



The frequency of foot screening should be determined by a trained healthcare professional (HCP) in primary care as per individual assessment. A foot risk surveillance (examination for foot ulcer risk) is one of the nine annual care processes recommended by NICE and is measured within the National Diabetes Core Audit.³ For adults with diabetes, NICE NG19 recommends assessing their risk of developing a diabetic foot problem at the following times:

- When diabetes is diagnosed, and at least annually thereafter (see recommendation 1.3.11).
- If any foot problems arise.
- On any admission to hospital, and if there is any change in their status while they are in hospital.

Those identified at increased risk or with active foot problems should be referred for specialist assessment by a foot protection team.¹

The Quality and Outcomes Framework indicators 2019–20 measure the percentage of patients with diabetes with a record of a foot examination and classify their risk as follows:⁴

- 1 Low risk (normal sensation, palpable pulses).
- 2 Increased risk (neuropathy or absent pulses).
- 3 High risk (neuropathy or absent pulses plus deformity or skin changes in previous ulcer).
- 4 Ulcerated foot within the preceding 12 months.

3. Performing a routine foot examination



Refer to www.diabetesframe.org for educational support including videos on how to perform a foot examination.

Diabetes UK's 'Putting Feet First Campaign' provides a useful checklist shown here.⁵

How to do an annual foot check:⁵

- Remove shoes and socks/stockings.
- Test foot sensations using 10 g monofilament or vibration with a tuning fork or recognised device.



- Palpate foot pulses (see below for further detail).
- Inspect for any deformity or discolouration.
- Inspect for significant callus.
- Check for signs of ulceration.
- Ask about any previous ulceration.
- Inspect footwear.
- Ask about any pain.
- 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.

Advise the patient to:⁵

- Check their feet every day.
- Be aware of loss of sensation.
- Look for changes in the shape of their foot.
- Not use corn removing plasters or blades.
- Know how to look after their toenails.
- Wear shoes that fit properly.
- Maintain good blood glucose control.
- Attend their annual foot review.
- Look for discolouration.

Monofilament testing^{6,7}

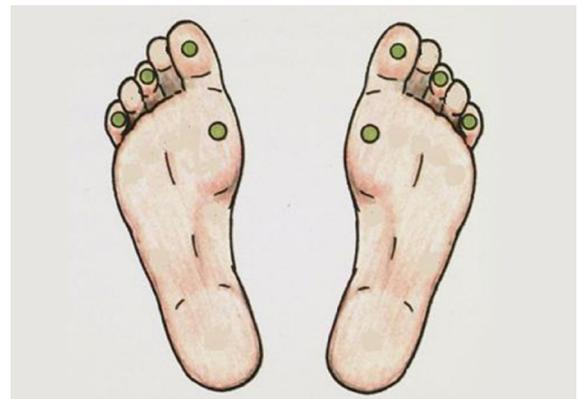
Screening for significant sensory neuropathy uses nylon monofilaments which provide an easy and reliable method to identify those patients at increased risk of developing foot ulceration.

- The examination should take place in a quiet and relaxed setting.
- Lay the patient flat.
- Ask the patient to close their eyes.

- Do not apply to any site where a callus or ulceration is present.

The four testing sites are shown in the illustration below.

- Plantar aspect of the great toe.
- Plantar aspect of the middle toe.
- Plantar aspect of the little toe.
- Plantar aspect of the first metatarsal head.



- Apply the monofilament perpendicular to the surface of the skin until it buckles and record the patient's response.
- If negative, repeat the procedure twice more at the same point.
- Failure to feel the filament at any tested site indicates significant sensory loss.

Palpation of foot pulses

Palpation of the pulses forms an important part of the assessment of the arterial blood supply of the lower limb. There are two main foot pulses which need to be tested; the dorsalis pedis and the posterior tibial.⁷

- To check for the dorsalis pedis place the fingers half way down the dorsum of the foot on the bony area in the line between the first and second toes.
- To check for the posterior tibial, locate the medial malleolus, 2–3 cm below and behind it is the posterior tibial pulse. The pulse is palpated using the pulps of the index and middle fingers.





4. Risk classification



It is important that risk status is correctly recorded.⁵

| Level of risk | | | |
|--|--|--|---|
| Low | Moderate | High | Active |
| <p>No risk factors other than callus.</p> | <ul style="list-style-type: none"> Deformity or Neuropathy (loss of sensation) or Lower limb peripheral arterial disease. | <ul style="list-style-type: none"> Previous ulceration or Previous amputation or On renal replacement therapy (dialysis or transplant) or Neuropathy (loss of sensation) and lower limb peripheral arterial disease together or Neuropathy (loss of sensation) in combination with callus and/ or deformity or Lower limb peripheral arterial disease in combination with callus and/or deformity. | <ul style="list-style-type: none"> Ulceration or Spreading infection or Critical limb ischaemia (severe peripheral arterial disease) or Gangrene or Suspicion of acute Charcot foot or an unexplained hot, red, swollen foot with or without pain. |
| Action | | | |
| Low | Moderate | High | Active |
| <ul style="list-style-type: none"> Annual screening by a suitably trained Healthcare Professional. Agree self-management plan. Provide written and verbal education with emergency contact numbers. | <ul style="list-style-type: none"> 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. | <ul style="list-style-type: none"> Refer to a specialist podiatrist or member of the FPS and request an assessment within 2–4 weeks. Thereafter they should be assessed every 1–2 weeks if there is immediate concern or every 1–2 months if there is no immediate concern. | <ul style="list-style-type: none"> Rapid referral (within one working day) to the FPS or the multidisciplinary foot team, for triage within one further working day. |
| <ul style="list-style-type: none"> Assess feet and lower limbs, then agree a tailored treatment plan. Provide written and verbal education with emergency contact numbers. <ul style="list-style-type: none"> Refer for special intervention if/when required. Liaise with other healthcare professionals (e.g. GP) as necessary. | | | |

In Scotland a standardised online foot screening tool called SCI-Diabetes collects all known risk factors and automatically calculates risk. The training is available at www.diabetesframe.org



Provide information and clear explanations to people with diabetes and/or their family members or carers where appropriate when diabetes is diagnosed, during assessments and if problems arise. Information provided should be oral and written.¹



5. Diagnosing and managing neuropathic pain



Neuropathic pain affects approximately 25% of people with diabetes.⁸ It is defined as pain that originates from a primary lesion or dysfunction in the nervous system.⁹ Neuropathic pain may be spontaneous or provoked, continuous or intermittent. Trigger words to aid diagnosis include “burning, shooting, stabbing”.¹⁰

It typically affects both feet and the discomfort is often worse at night especially in bed.⁶

Neuropathic symptoms include:⁹

- Allodynia (pain produced by an innocuous stimulus e.g. touch, pressure).
- Hyperaesthesia (increased sensitivity to touch).
- Hyperalgesia (increased response to stimulus which is normally painful).
- Dysaesthesia (an unpleasant abnormal sensation).

For guidance on managing painful diabetic peripheral neuropathy in adults with type 2 diabetes, see the NICE guideline on neuropathic pain in adults:¹⁰
<https://www.nice.org.uk/guidance/cg173>

References

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