West Hertfordshire Hospitals NHS Trust

Hertfordshire Community NHS Trust

Update on local Diabetic Foot services and referral pathways

Dr Rachel Troke Dr Chantal Kong Dr Pawan Pusalkar

Rebecca Gardner Dr Lucinda Elston Anne Parry Laura Sweetland

(West Hertfordshire Hospitals NHS Trust, East & North Hertfordshire Hospitals NHS Trust, Hertfordshire Community Podiatry)

ENHIDE East and North Herts Institute of Diabetes and Endocrinology

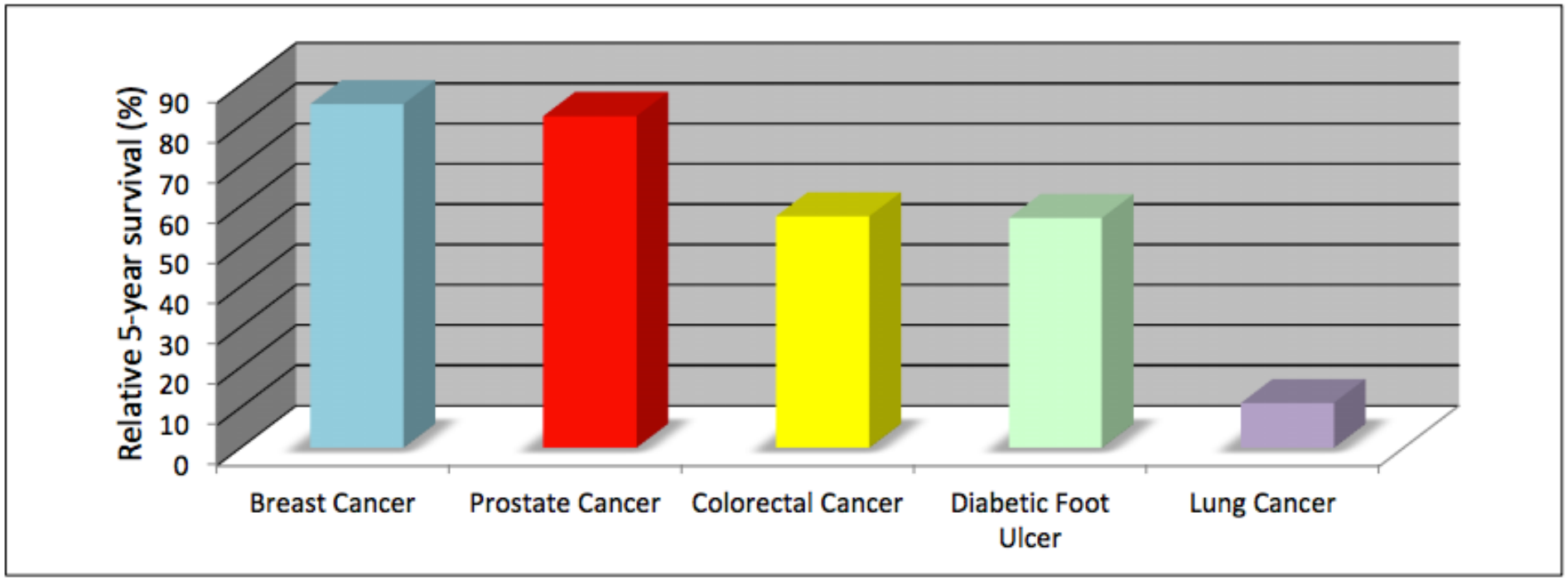
East and North Hertfordshire NHS Trust

Plan

- Background & Epidemiology
- Standards of Care & Guidelines
- Risk Stratification
- New Service & Referral Care Pathways
- Management of the diabetic foot
- Case studies
- Summary
- Questions

Epidemiology of the Diabetic Foot

- Leading cause of all non traumatic lower limb amputation (40-60%)
- Commonest cause of hospital bed occupancy (most common cause of hospital admission amongst diabetes patients, National Diabetes Inpatient Audit)
- 85% are preceded by foot ulceration
- Lower limb amputations ↑ x 23 in diabetes (Kerr 2017)
- > 50% require amputation of other limb within 3-5 years
- 50% foot ulcer patients die within 5 years



Foot ulcers are associated with higher mortality. However deaths are not necessarily attributable to ulceration - Kerr, M. (2017). Foot Care in Diabetes: The Human and Financial Cost. *Insight Health Economics*. 1 (1), 5.

Total Estimated Expenditure on diabetic foot disease, England 2014-15

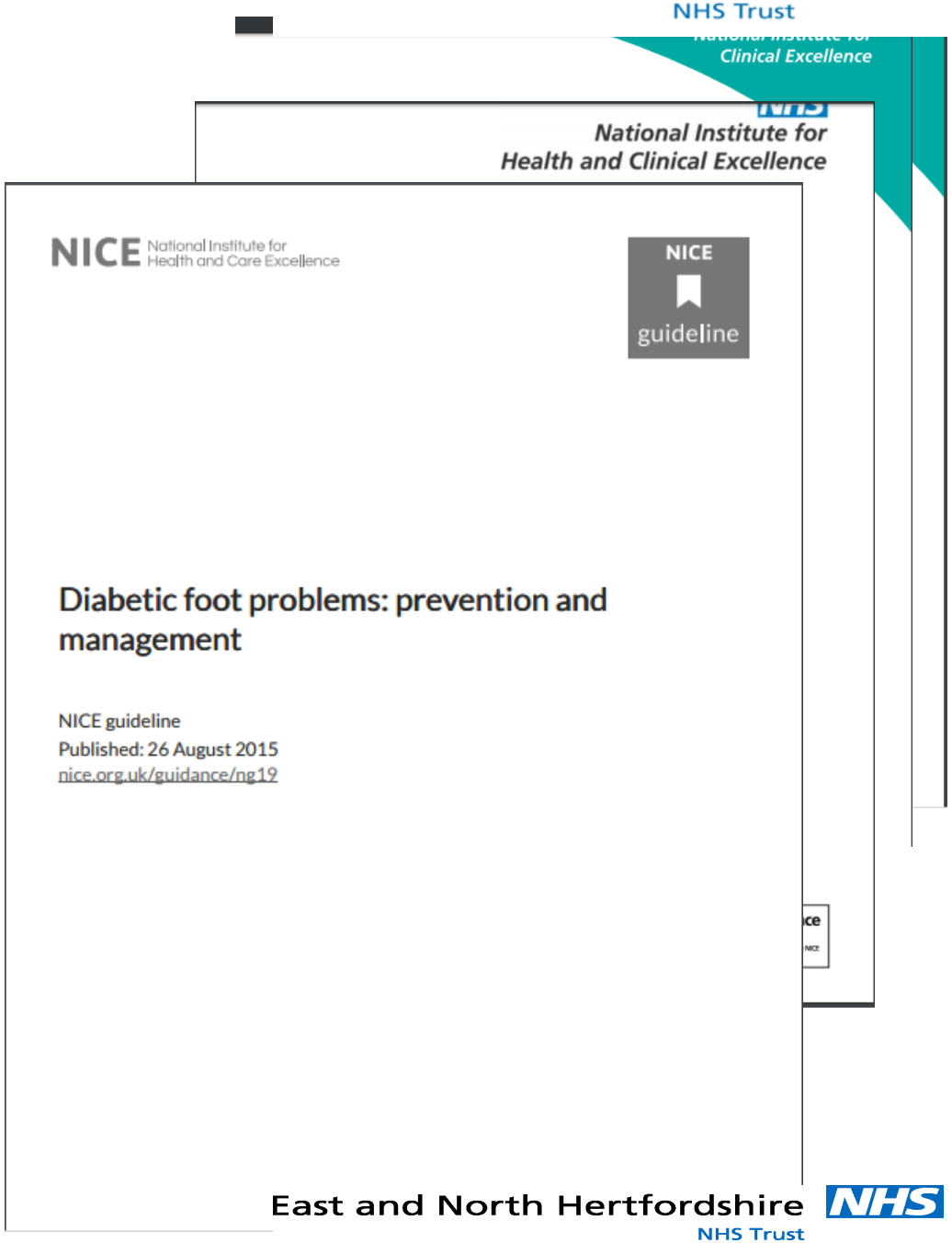
	Estimated annual cost
Primary, Community & Outpatient Care, Ulceration	£629,161,354 - £786,451,692
Inpatient Care, Amputation	£43,797,632
Inpatient Care, Ulceration	£278,452,386
Post-Amputation Care	£20,813,777
TOTAL	**£972,225,149 - £1,129,515,487**

Kerr, M. (2017). Foot Care in Diabetes: The Human and Financial Cost. *Insight Health Economics*. 1 (1), 5.

What level of care should the diabetic patient with a foot problem expect?

Quality standards

- Putting Feet First 2003
- NICE 2004 CG10 (Type 2 Diabetes foot problems: Prevention and Management of Foot problems
- NICE CG15 2004 (Diagnosis and management of Type 1 diabetes in children, young people and adults)
- NICE CG119 March 2011 (Diabetic foot problems: Inpatient management of diabetic foot problems)
- NICE CG19 Aug 2015, updated Jan 2016 (Diabetic foot problems: prevention and management)



Commissioners and service providers should ensure that the following are in place:

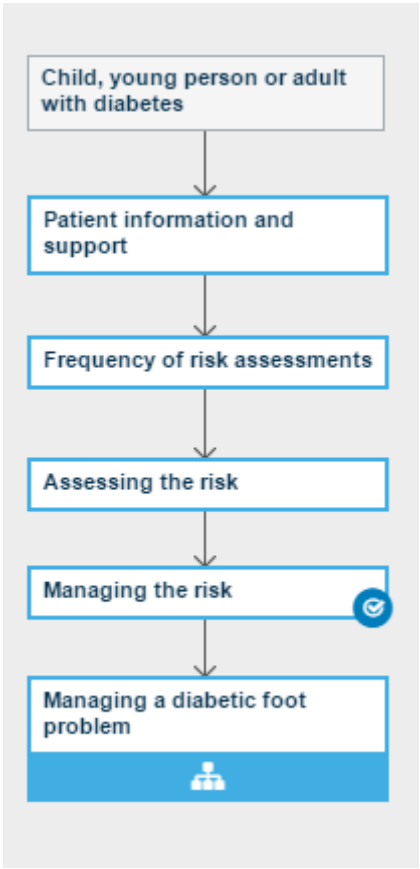
- A **foot protection service**
- A **multidisciplinary foot care service**
- **Robust protocols and clear local pathways** for the **continued and integrated care** of people across all settings, including **emergency care and general practice**
- Regular reviews of treatment and patient outcomes, in line with the **National Diabetes Foot Care Audit (NDFA)**

Risk Stratification & Foot Assessment

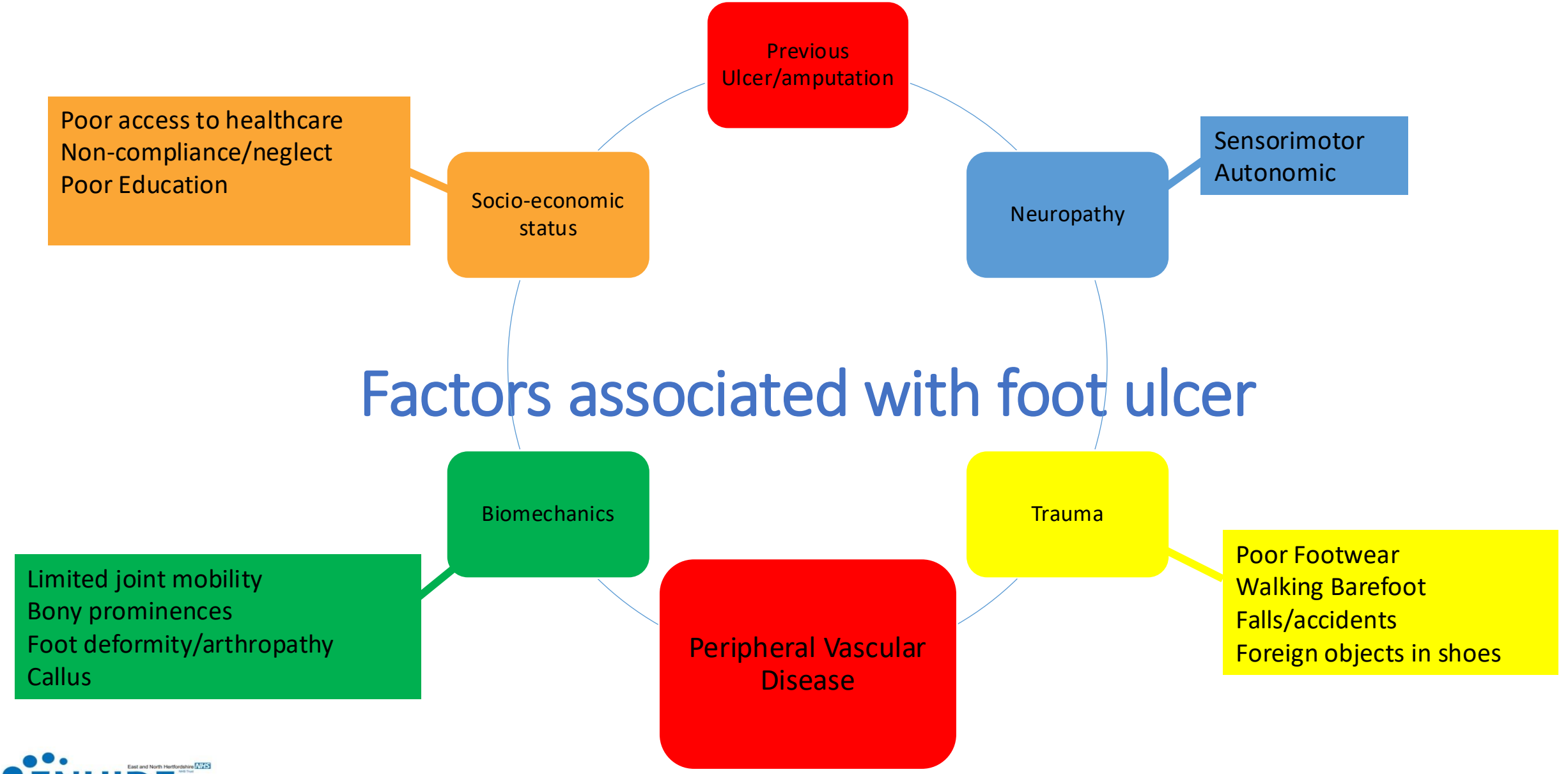
Reducing the risk of developing a diabetic foot problem

NICE National Institute for Health and Care Excellence

- Education, Education, Education….. (patients, carers, HCPs)
- On-going care: annual review & recall
- Detection of risk factors for ulceration
- Classification of foot risk
- Refer early to Community Podiatry & MDT foot clinics



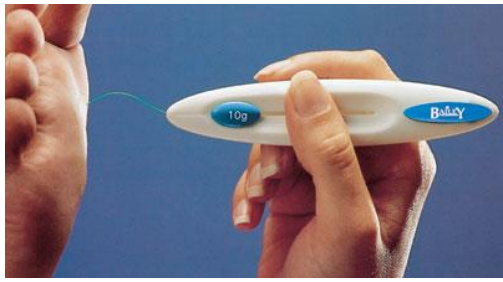
Factors associated with foot ulcer



How frequently should you assess your diabetic patients' feet?

- At time of diagnosis and at least annually thereafter
- If any foot problems arise
- On any admission to hospital, and if there is any change in their status while they are in hospital

Assessing the risk of developing a diabetic foot problem



Remove the patient's shoes, socks, bandages and dressings, and examine both feet for evidence of the following risk factors:

- Neuropathy (use a 10 g monofilament)
- Limb ischaemia/Gangrene
- Ulceration
- Callus
- Infection and/or inflammation
- Deformity
- Swelling (Charcot arthropathy)

www.diabetesframe.org/

Diabetes Foot Screening

Foot Risk Awareness and Management Education (FRAME)

November 23, 2019

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Training Modules
About FRAME
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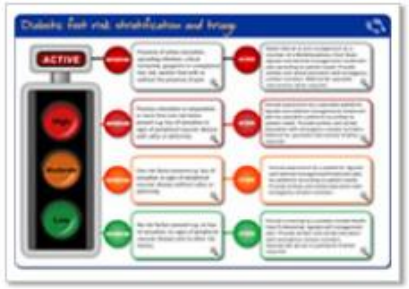
FAQ
Contact Us
Legal
Admin Login





Introduction

The **Foot Risk Awareness and Management Education (FRAME)** project was commissioned by the Scottish Government to produce an e-learning resource which would help standardise diabetes foot screenings performed by Health Care Professionals.

The website aims to provide an interactive way of learning and uses animations and case scenarios. There is an assessment involving case scenarios at the end of this module which the learner may opt to undertake and which, if passed, gives a certificate of completion.

Target Audience

Diabetic foot screening may be carried out by any health care professional/worker involved in the care of a patient with diabetes. These may include some of the examples listed below:

- Podiatrist
- Practice nurse
- District nurse
- Podiatry technician
- Health care assistant
- Health care worker

NHS SCOTLAND
The University of Edinburgh
The Scottish Government
GCU Glasgow Caledonian University
FRAME

here to search

22:12

DIABETES UK
KNOW DIABETES. FIGHT DIABETES.

Identification of foot status and what action to take

Level of risk		Action
Active	• 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.	• Rapid referral (within one working day) to the Foot Protection Service (FPS) or the multidisciplinary foot team, for triage within one further working day. • Assess foot 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.
High	• 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*.	• Refer to a specialist podiatrist or member of the Foot Protection Service (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. This is in addition to their annual assessment. Both assessments should be carried out 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	• Deformity* or • neuropathy (loss of sensation) or • lower limb peripheral arterial disease.	• 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.
Low	• No risk factors, as listed above, present. • Callus alone is considered low risk.	• Annual screening by a suitably trained Healthcare Professional. • Agree self management plan. • Provide written and verbal education with emergency contact numbers.

Record risk status and inform patient of their risk status and what it means.

*A change in foot shape that results in difficulty in fitting a standard shoe, as assessed by the practitioner.
These risk categories relate to the use of the SCI-DC foot risk stratification tool and NICE guidance (NG19, 2015).

Produced by the Scottish Diabetes Foot Action Group

Low	• No risk factors, as listed above, present. • Callus alone is considered low risk.	• Annual screening by a suitably trained Healthcare Professional. • Agree self management plan. • Provide written and verbal education with emergency contact numbers.
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High

- Previous ulceration or
- previous amputation or
- on renal replacement therapy (dialysis or transplant) or
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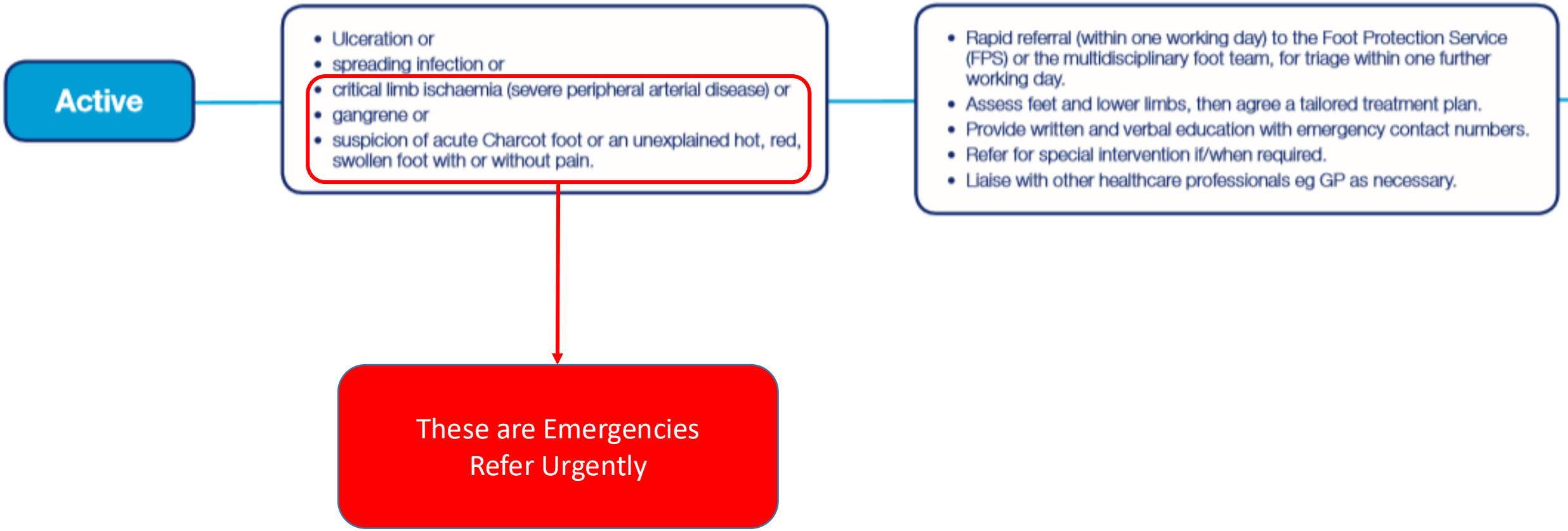
Active
Ulceration or
spreading infection or
critical limb ischaemia (severe peripheral arterial disease) or
gangrene or
suspicion of acute Charcot foot or an unexplained hot, red, swollen foot with or without pain.
Rapid referral (within one working day) to the Foot Protection Service (FPS) or the multidisciplinary foot team, for triage within one further working day.
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.
These are Emergencies
Refer Urgently

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NHS Trust

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NHS Trust

Your feet have been assessed as being at
LOW RISK
of developing diabetic foot complications.

This means your feet are in good condition at the moment, but this could change.

It is important to have good blood glucose control, blood pressure and cholesterol to reduce further risks.
Remember to attend your annual review at your GP surgery.

CHECK YOUR FEET DAILY
If you notice any changes to your foot:

- New ulcer / broken skin
- Discolouration
- Swelling
- Pain

Contact your GP straight away. Explain that you have a diabetic foot problem.

April 2017

Your feet have been assessed as being at
INCREASED/ MODERATE RISK
of developing diabetic foot complications.

This is because you have a risk factor such as numbness, poor circulation or foot deformity.

You may be under the care of the Podiatry Service. It is still important to attend your annual review at your GP surgery.

It is important to have good blood glucose control, blood pressure and cholesterol to reduce further risks.

CHECK YOUR FEET DAILY
If you notice any changes to your foot:

- New ulcer / broken skin
- Discolouration
- Swelling
- Pain

Contact your GP straight away. Explain that you have a diabetic foot problem. Outside of normal hours, call the Out of Hours GP or go to A&E.

Podiatry Head Office: 01727 732004
(Mon – Fri 08.30 – 16.30)

April 2017

Your feet have been assessed as being at
HIGH RISK
of developing diabetic foot complications.

This is because you have more than 1 risk factor such as numbness, poor circulation or foot deformity.

You will be under the care of the Podiatry Service and should attend your appointments regularly to help prevent a foot problem.

It is important to have good blood glucose control, blood pressure and cholesterol to reduce further risks.

CHECK YOUR FEET DAILY
If you notice any changes to your foot:

- New ulcer / broken skin
- Discolouration
- Swelling
- Pain

Contact your GP straight away. Explain that you have a diabetic foot problem. Outside of normal hours, call the Out of Hours GP or go to A&E.

Podiatry Head Office: 01727 732004
(Mon – Fri 08.30 – 16.30)

April 2017

Your feet have been assessed and you have
AN ACTIVE FOOT PROBLEM
Such as an ulcer, bone infection or Charcot.

You will be under the care of the Podiatry Service and should attend your appointments regularly to help resolve your foot problem. You may need to be referred to a multi-disciplinary foot team.

It is important to have good blood glucose control, blood pressure and cholesterol to reduce further risks.

CHECK YOUR FEET DAILY
If you notice any changes:

- New ulcer / broken skin on your foot
- New redness, discolouration, pain or swelling to your foot
- New / increased discharge or smell to your foot
- Flu like symptom (hot / shivery)
- Unexplained increase in blood glucose

Contact your GP straight away. Explain that you have a diabetic foot problem. Outside of normal hours, call the Out of Hours GP or go to A&E.

Podiatry Head Office: 01727 732004
(Mon – Fri 08.30 – 16.30)

April 2017

https://www.hct.nhs.uk/our-services/podiatry-service/

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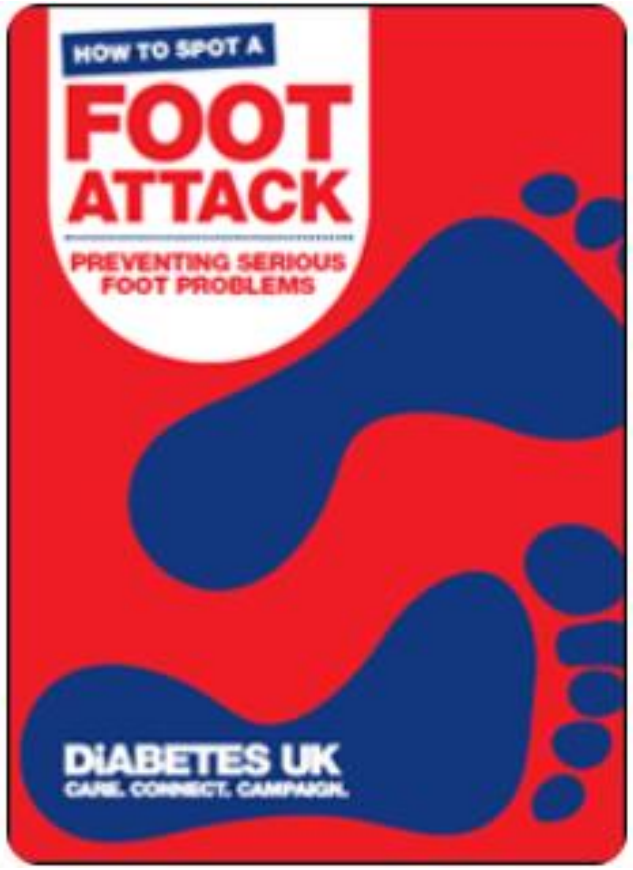
FOOT ATTACK

"Time is tissue"



Services

Diabetes MDT foot service E&N

- Next Working Day Access
- Podiatrist, Diabetologist, Diabetes Specialist Nurse (+/- vascular & orthopaedics)

Day	Clinics
Monday	am - HCH
Tuesday	am – Lister + MDT ward round pm – 1/4 QE2 Joint Orthopaedic clinic
Wednesday	am - Lister
Thursday	am & pm – Lister am – QE2
Friday	am - Lister

• Diabetes MDT foot service West Herts

- Clinics: Podiatrist, Diabetologist, DSN (+ Vascular input)
- Ward round WGH: Podiatrist, Diabetologist, Vascular, Microbiology

Monday	Tuesday	Wednesday	Thursday	Friday
MDFT clinic (HHGH) 2 podiatry chairs	Inpatient MDFT ward round (WGH)	MDFT clinic (WGH) 2 podiatry chairs	MDFT clinic (HHGH) 2 podiatry chairs	MDFT clinic (WGH) 2 podiatry chairs
	MDFT clinic (HHGH) 2 podiatry chairs	1-2 pm MDFT Xray meeting (WGH)	Inpatient MDFT ward round (WGH)	

Footcare Pathway

PLEASE SELECT A RISK LEVEL TO VIEW PATHWAY

- Low Risk
- Increased Risk
- High Risk
- !

Annual Foot Review
Assumed patient part of ongoing care and one to one education as per NICE/NSF

Foot Examination with shoes and socks stockings removed

- Test foot sensations
- Palpate foot pulses
- Inspect for any deformity
- Inspect for significant callus
- Inspect footwear
- Ask about any pain
- Check for signs of ulceration
- Ask about previous ulceration

Normal sensation, palpable pulses

One risk factor present e.g. neuropathy or absent pulses or other foot changes

Previous ulcer or amputation or more than one risk factor e.g. neuropathy or absent pulses plus deformity or skin changes

Any one of the following: new ulcer identified, swelling, discoloration, infection, acute pain in lower leg in the absence of trauma.

URGENT/ EMERGENCY

Any one of the following
New ulcer identified, swelling, discoloration, infection, acute pain in lower leg in the absence of trauma?
Ischaemic foot

Is the foot/lower leg red, hot, deformed or critically ischaemic, gangrenous or is patient unwell?

Yes

Refer to AAU Medical SpR on call for admission immediately to see the medical diabetes inpatient team

No

Refer to outpatient MDT to be seen within 2 working days. Weekend cases should be referred to AAU Medical SpR on call.

- Risk stratify.
- Triage within one working day

How to refer (Current – soon to be via ERS!)

E&N Herts

- Via Podiatry Head Office
  - 8.30-4.30 Monday-Friday
  - 01727 732004
  - podiatryhct@nhs.net

- **URGENT FOOT (patient not unwell)**
  - **Refer via podiatry as above**
  - ACC Lister 07500 792616 08.30 – 17.00
  - ACC QE2 01707 247563 / 566 / 567 (Medic) 08.30 – 15.30

- **EMERGENCY FOOT**
  - **Via the medical take to AMU Lister (07500 792616)**

West Herts

- Via SPOC form on DXS
  - Tick podiatry box
  - Risk assess (Low/Increased/High/Urgent)

➢ **URGENT FOOT (patient not unwell)**
- new ulcer, redness, swelling, unexplained hot foot, pain
- Reviewed in MDFT clinics

➢ **EMERGENCY FOOT**
- **refer via Medical on-call team WGH asap**
- **Admit**

Case Studies

Case 1

- 51 year old with poorly controlled Type 2 diabetes
- Has neuropathy (also retinopathy & proteinuria)
- HbA1c in 2016 at first presentation in foot clinic 112mmol/mol
- Current smoker
- Poor compliance to treatment
- Right 1st toe amputation in October 2016 (due to infected toe)
- Bounding foot pulses

- Recurrent foot ulcer right 3rd metatarsophalangeal region since 2016
- Several courses of antibiotics needed during this time
- Total loss of foot sensations
- Had to leave his job as a window fitter
- Ulcer had healed a few times but only for a few weeks
- Custom made shoes from orthotics

2 weeks in a plaster cast

4 weeks in plaster cast

- Rest and off loading are crucial in the treatment of non-healing neuropathic ulcers
- Plaster cast remains the most effective way

Case 2

- 49 year old male
- Type 2 diabetes last 7 years
- Poor control and HbA1c 102 mmol/mol
- Poor compliance to treatment, no diabetes follow-ups with GP
- Painless sensory neuropathy

- Presented to podiatry with 2 month hot, red, swollen left foot following a minor fall
- Had 2 courses of antibiotics by GP
- Good pedal pulses
- Poor perception of sensations with 10g monofilament and tuning fork.
- Left foot temp 4 degrees > right foot

- Foot X-ray – Features consistent with midfoot Charcots
- Immobilisation in total contact cast offered but patient could not have it due to his personal circumstances
- Aircast boot given
- No change in clinical features after 2 weeks

- Total contact cast applied
- 3 weeks later developed a rub – plantar aspect of 3/4th metatarsophalangeal joint 35 x 22mm.
- Oral flucloxacillin for 2weeks
- Cast removed and changed to aircast boot so that the ulcer could be monitored
- Ulcer better in next 4-5 weeks only 5 x 5mm

- Sudden worsening of the ulcer in the next appointment with swelling, redness and erythema of the whole foot
- Unwell, fever, rigors last 24 hours
- Had been walking a lot for last few days with the aircast and despite advice re walking to a minimum

- Admitted as an emergency
- MRI foot – Abscess at the plantar aspect, osteomyelitis of cuboid bone
- Treated with IV antibiotics and discharged home on IV teicoplanin

- 8 months following diagnosis of Charcot – Rocker bottom foot deformity
- Bony protrusion midfoot planter aspect
- No planter ulcer
- Wears removable bivalve plaster cast.

Case 3

- 78 year old man
- Presented with necrotic infected left second toe apex
- Antibiotics commenced
- Seen by Vascular, Duplex requested with a view to angioplasty

- Deterioration of necrosis
- Angio before amputation!
- Scans expedited, identified
  - superficial femoral stenosis
  - anterior tibial stenosis

- Angioplasty performed, good results both above & below knee

- 2nd toe amputated
- 3rd toe became necrotic and amputated as well
- Now healed

Management

Key priorities are to:

- Treat any infection that is present
- Treat vascular disease, if present
- Alleviate pressure to aid healing (off-loading)
- Achieve good metabolic (glycaemic) control and control of risk factors for cardiovascular disease (smoking, dyslipidaemia)


Multi-disciplinary team
Antibiotic pharmacist
Primary care team
Diabetes nurse
Splints/casting
Vascular surgeon
Microbiologist
Orthopaedic surgeon
Orthotist
Physician
Podiatrist

Management of active foot ulcers

- Treat Infection; tissue samples, deep swabs for culture
- Refer **urgently** to MDT Foot clinics
- Assess vascular supply & intervene as necessary
- Offloading
- Wound debridement (by specialist podiatrists or vascular surgeons)
- Plain Foot Xrays if wound persistent and deep, probes to bone, oedema, suspicious of osteomyelitis
- Use wound dressings that best match clinical experience, patient preference, site of the wound (no strong evidence). Consider cost of dressing
  - Recent first RCT regarding dressings (EXPLORER study) Urgostart - 48% healing at 20 weeks vs 30% with standard dressings. Cost saving. NICE recommended
- Regular monitoring & dressing change

Antibiotic Guidelines (HMMC)

Mild infections:

- Flucloxacillin 1g qds po. Duration 7-10 days (Doxycycline 100mg bd)

Moderate infections:

- Co-amoxiclav 1.2g IV tds 7-10 days

Severe infections:

- Needs IV antibiotic – refer to acute medical/ diabetes team or ACC
- For penicillin allergy Teicoplanin 400mg every 12 hours for 3 doses then 400mg daily plus Doxycycline 100mg bd

People with Charcot osteoarthropatny

- Immediate referral to multidisciplinary foot care team
- Immobilise affected joint(s)
- Longstanding management is offloading
- No pharmacological cure/treatment
- BUT closely correlated with glycaemic control

Total Contact Cast

Summary

- Significant proportion of amputations are preventable (but not all….)
- Early identification & treatment intervention is vital
- Management of the diabetic foot is complex and requires a multidisciplinary approach
- Refer early to the specialist podiatry team (Foot protection team) & MDT Diabetes Specialist Team
- Identify and treat any infection after a deep wound swab (NB Diabetic wounds may not always look actively infected)
- Regular foot checks vital
- Education of healthcare professionals, patients & carers is essential
- Regular follow-up surveillance and education for all patients especially for moderate and high risk groups

Any Questions?