NHS

National Institute for Clinical Excellence

Type 2 diabetes

Prevention and management of foot problems*

* Update of the guideline entitled *Clinical Guidelines and Evidence Review for Type 2 Diabetes: Prevention and Management of Foot Problems* published by the Royal College of General Practitioners in 2000

Clinical Guideline 10

January 2004

Developed by the National Collaborating Centre for Primary Care

Clinical Guideline 10

Type 2 diabetes
Prevention and management of foot problems

Issue date: January 2004

This document, which contains the Institute's full guidance on the prevention and management of foot problems in people with type 2 diabetes, is available from the NICE website (www.nice.org.uk/CG010NICEguideline).

An abridged version of this guidance (a 'quick reference guide') is also available from the NICE website (www.nice.org.uk/CG010quickrefguide). Printed copies of the quick reference guide can be obtained from the NHS Response Line: telephone 0870 1555 455 and quote reference number N0409.

Information for the Public is available from the NICE website or from the NHS Response Line (quote reference number N0410 for a version in English and N0411 for a version in English and Welsh).

The quick reference guide for this guideline has been distributed to the following:

- Primary care trust (PCT) chief executives
- Local health board (LHB) chief executives
- NHS trust chief executives in England and Wales
- Strategic health authority chief executives in England and Wales
- Medical and nursing directors in England and Wales
- Clinical governance leads in England and Wales
- Audit leads in England and Wales
- NHS trust, PCT and LHB libraries in England and Wales
- Patient advice and liaison co-ordinators in England
- GP partners in England and Wales
- Practice nurses in England and Wales
- Podiatrists/chiropodists in England and Wales
- Consultant diabetologists and endocrinologists in England and Wales
- Tissue viability nurses in England and Wales
- Senior pharmacists and pharmaceutical advisors in England and Wales
- NHS Director Wales
- Chief Executive of the NHS in England
- Chief Medical, Nursing and Pharmaceutical Officers in England and Wales
- Medical Director & Head of NHS Quality – Welsh Assembly Government
- Commission for Health Improvement
- NHS Clinical Governance Support Team
- Patient advocacy groups
- Representative bodies for health services, professional organisations and statutory bodies, and the Royal Colleges

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This guidance is written in the following context:
This guidance represents the view of the Institute, which was arrived at after careful consideration of the evidence available. Health professionals are expected to take it fully into account when exercising their clinical judgement. The guidance does not, however, override the individual responsibility of health professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

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Key priorities for implementation

General management approach

- Effective care involves a partnership between patients and professionals, and all decision making should be shared.
- Arrange recall and annual review as part of ongoing care.
- As part of annual review, trained personnel should examine patients' feet to detect risk factors for ulceration.
- Examination of patients' feet should include:
  - testing of foot sensation using a 10 g monofilament or vibration
  - palpation of foot pulses
  - inspection of any foot deformity and footwear.
- Classify foot risk as: at low current risk; at increased risk; at high risk; ulcerated foot.

Care of people at low current risk of foot ulcers (normal sensation, palpable pulses)

- Agree a management plan including foot care education with each person.

Care of people at increased risk of foot ulcers (neuropathy or absent pulses or other risk factor)

- Arrange regular review, 3–6 monthly, by foot protection team.
- At each review:
  - inspect patient's feet
  - consider need for vascular assessment
  - evaluate footwear
  - enhance foot care education.

NB If patient has had previous foot ulcer or deformity or skin changes manage as high risk (see over page).

Care of people at high risk of foot ulcers (neuropathy or absent pulses plus deformity or skin changes or previous ulcer)

- Arrange frequent review (1–3 monthly) by foot protection team.
- At each review:
  - inspect patient's feet
  - consider need for vascular assessment
  - evaluate and ensure the appropriate provision of
    - intensified foot care education
    - specialist footwear and insoles
    - skin and nail care.
- Ensure special arrangements for those people with disabilities or immobility.

Care of people with foot care emergencies and foot ulcers

- Foot care emergency (new ulceration, swelling, discolouration)
  - Refer to multidisciplinary foot care team within 24 hours.
- Expect that team, as a minimum, to:
  - investigate and treat vascular insufficiency
  - initiate and supervise wound management
    - use dressings and debridement as indicated
    - use systemic antibiotic therapy for cellulitis or bone infection as indicated
  - ensure an effective means of distributing foot pressures, including specialist footwear, orthotics and casts
  - try to achieve optimal glucose levels and control of risk factors for cardiovascular disease.

This guideline is an update of the guideline entitled *Clinical Guidelines and Evidence Review for Type 2 Diabetes: Prevention and Management of Foot Problems* originally published by the Royal College of General Practitioners.* The update incorporated newly identified and accepted research evidence into the existing evidence review, undertaken for the development of the original guideline. The Guideline Development Group therefore considered the entire body of evidence – that previously identified and that newly identified – in its discussions.

* Hutchinson A, McIntosh A, Feder G, Home PD, et al. (2000) *Clinical Guidelines and Evidence Review for Type 2 Diabetes: Prevention and Management of Foot Problems.* London: Royal College of General Practitioners. Available from: www.rcgp.org.uk/clinspec/guidelines/diabetes/contents.asp

The following guidance is evidence based. The grading scheme used for the recommendations (A, B, C, D, NICE 2003) is described in Appendix A; a summary of the evidence on which the guidance is based is provided in the full guideline (see Section 5).

1 Guidance

Type 2 diabetes is a complex metabolic disorder, which is becoming increasingly common in the UK. The serious complications that can arise can have a considerable impact on the individual and also on health services. Serious complications can, however, be delayed – and in some instances even prevented from occurring – with appropriate and careful management.

1.1 Foot care in diabetes

One of the complications associated with diabetes is peripheral vascular disease (the damage caused to large blood vessels supplying lower limbs). This can cause poor circulation, which can result in pain and also predispose patients' feet to the development of ulcers, which can lead ultimately to amputation. Another complication is neuropathy (damage/degeneration of the nerves), which can lead to loss of sensation in the feet.

Foot complications are common in diabetes. Overall, 20–40% of people with diabetes have neuropathy and 20–40% have peripheral vascular disease (PVD); these values depend on the measurement and definition used. Neuropathy and PVD are secondary to poor blood glucose control and adverse arterial risk factors (such as smoking or dyslipidaemia). Around 5% of people with diabetes may develop a foot ulcer in any year, and amputation rates are often around 0.5% per year. Where neuropathy and ischaemia lead to ulceration (especially with poor glucose control), the foot can become infected, often with polymicrobial invasion, and it may need to be amputated if the infection is not managed appropriately.

1.1.1 Foot care: general management approach

1.1.1.1 Effective care involves a partnership between patients and professionals, and all decision making should be shared. **D**

1.1.1.2 The role that any informal carers of the person with diabetes have in providing care and receiving information to allow them to fulfil this role should be discussed with the person with diabetes, and any decisions about this should be that of the person with diabetes. **D**

1.1.1.3 Arrange recall and annual review as part of ongoing care. **A**

1.1.1.4 Healthcare professionals and other personnel involved in the assessment of diabetic feet should receive adequate training. **D**

1.1.1.5 As part of annual review, trained personnel should examine patients' feet to detect risk factors for ulceration. **A**

1.1.1.6 To improve knowledge, encourage beneficial self-care and minimise inadvertent self-harm, healthcare professionals should discuss and agree with patients a management plan that includes appropriate foot care education.* **B**

1.1.1.7 Extra vigilance should be used for people who are older (over 70 years of age), have had diabetes for a long time, have poor vision, have poor footwear, smoke, are socially deprived or live alone. **C**

1.1.1.8 Healthcare professionals may need to discuss, agree and make special arrangements for people who are housebound or living in care or nursing homes to ensure equality of access to foot care assessments and treatments. **D**

1.1.1.9 Structured patient education should be made available to all people with diabetes at the time of initial diagnosis, and then as required on an ongoing basis, based on a formal, regular assessment of need. **NICE 2003**

1.1.1.10 Offer patient education on an ongoing basis.* **A**

1.1.1.11 Use different patient education approaches until optimal methods appear to be identified in terms of desired outcomes. **B**

1.1.2 Foot examination and monitoring

1.1.2.1 Regular (at least annual) visual inspection of patients' feet, assessment of foot sensation, and palpation of foot pulses by trained personnel is important for the detection of risk factors for ulceration. **A**

1.1.2.2 Examination of patients' feet should include: **A**

- testing of foot sensation using a 10 g monofilament or vibration (using biothesiometer or calibrated tuning fork)
- palpation of foot pulses
- inspection for any foot deformity
- inspection of footwear.

* See Appendix E for information about issues and topics that might be covered in patient education.

1.1.2.3 Monofilaments should not be used to test more than ten patients in one session and should be left for at least 24 hours to 'recover' (buckling strength) between sessions. C

1.1.2.4 Classify foot risk as: C

- low current risk (normal sensation, palpable pulses)
- at increased risk (neuropathy or absent pulses or other risk factor)
- at high risk (neuropathy or absent pulses plus deformity or skin changes or previous ulcer)
- ulcerated foot.

1.1.2.5 Self-monitoring and inspection of feet by people with diabetes should be encouraged. D

1.1.3 Care of people at low current risk of foot ulcers *(normal sensation, palpable pulses)*

1.1.3.1 To improve knowledge, encourage beneficial self-care and minimise inadvertent self-harm, healthcare professionals should discuss and agree with patients a management plan that includes appropriate foot care education.* B

1.1.4 Care of people at increased risk of foot ulcers *(neuropathy or absent pulses or other risk factor)*

1.1.4.1 Patients with risk factors for ulceration should be referred to a foot protection team.† D

1.1.4.2 Arrange review 3–6 monthly by a foot protection team. D

1.1.4.3 At each review: D

- inspect patient's feet.
- review need for vascular assessment
- evaluate footwear.

1.1.4.4 Enhance foot care education.*

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* See Appendix E for information about issues and topics that might be covered in patient education.

† A team with expertise in protecting the foot; typically, members of the team include podiatrists, orthotists and footcare specialists.

1.1.5 Care of people at high risk of foot ulcers
(neuropathy or absent pulses plus deformity or skin changes or previous ulcer)

1.1.5.1 Patients at high risk for ulceration should be referred to a foot protection team. **A**

1.1.5.2 Arrange frequent review, 1–3 monthly, by a foot protection team. **D**

1.1.5.3 At each review:

- inspect patient's feet **A**
- review need for vascular assessment. **D**

1.1.5.4 At each review, evaluate provision and provide appropriate: **D**

- intensified foot care education
- specialist footwear and insoles
- skin and nail care.

1.1.5.5 Ensure special arrangements for access to the foot protection team for those people with disabilities or immobility. **D**

1.1.6 Care of people with foot ulcers

1.1.6.1 For a new foot ulcer, urgent (within 24 hours) assessment by an appropriately trained health professional should be arranged. **D**

1.1.6.2 Ongoing care of an individual with an ulcerated foot should be undertaken without delay by a multidisciplinary foot care team. **D**

1.1.6.3 The multidisciplinary foot care team should comprise highly trained specialist podiatrists and orthotists, nurses with training in dressing of diabetic foot wounds and diabetologists with expertise in lower limb complications. They should have unhindered access to suites for managing major wounds, urgent inpatient facilities, antibiotic administration, community nursing, microbiology diagnostic and advisory services, orthopaedic/podiatric surgery, vascular surgery, radiology and orthotics. **D**

1.1.6.4 Patients who may benefit from revascularisation should be referred promptly. **D**

1.1.6.5 Patients with non-healing or progressive ulcers with clinical signs of active infection (redness, pain, swelling or discharge) should receive intensive, systemic antibiotic therapy. **C**

1.1.6.6 In the absence of strong evidence of clinical or cost effectiveness, healthcare professionals should use wound dressings that best match clinical experience, patient preference, and the site of the wound, and consider the cost of the dressings. **D**

1.1.6.7 Wounds should be closely monitored and dressings changed regularly. **D**

1.1.6.8 Dead tissue should be carefully removed from foot ulcers to facilitate healing, unless revascularisation is required. **B**

1.1.6.9 Total contact casting may be considered for people with foot ulcers unless there is severe ischaemia. **B**

1.1.6.10 Currently, there is a lack of trial evidence on the use of the following interventions in the treatment of foot ulcers and they are not recommended: cultured human dermis (or equivalent), hyperbaric oxygen therapy, topical ketanserin or growth factors. **D**

1.1.6.11 For patients with foot ulcers or previous amputation, healthcare professionals could consider offering graphic visualisations of the sequelae of disease, and providing clear, repeated reminders about foot care. **B**

1.1.7 Care of people with Charcot osteoarthropathy

1.1.7.1 People with suspected or diagnosed Charcot osteoarthropathy should be referred immediately to a multidisciplinary foot care team for immobilisation of the affected joint(s) and for long-term management of offloading to prevent ulceration. **D**

1.1.8 Emergency referral

1.1.8.1 Refer patients to a multidisciplinary foot care team within 24 hours if any of the following occur: **D**

- new ulceration (wound)
- new swelling
- new discolouration (redder, bluer, paler, blacker, over part or all of foot).

2 Notes on the scope of the guidance

All NICE guidelines are developed in accordance with a scope document that defines what the guideline will and will not cover. The scope of this guideline was established at the start of the development of this guideline, following a period of consultation; it is available from www.nice.org.uk/Docref.asp?d=58126

This guideline aims to provide a standard set of recommendations for the prevention and management of foot problems. It covers the care of adults and children with type 2 diabetes by primary and secondary healthcare professionals.

The guideline addresses: patient and carer education regarding prevention and management of foot problems associated with diabetes; the definition of increased risk of foot complications; the identification of those at risk; the management and prevention of foot complications; diagnosis of the foot with complications; management of the ulcerated foot; primary prevention, and prevention of recurrence; and indications for referral to specialist services. It includes recommendations for primary and secondary care settings.

The guideline does not include identification of undiagnosed diabetes, the general management of diabetes (other than aspects that relate to the prevention of foot complications), or the management of foot problems in people who do not have type 2 diabetes. The guideline does not cover surgical procedures, amputation or post-amputation rehabilitation. The guideline does not cover neuropathic pain.

Although this is an NHS guideline, the recommendations may also be relevant to people working in social services, residential and nursing homes and the voluntary sector.

3 Implementation in the NHS

3.1 In general

Local health communities should review their existing service provision for people with diabetes against this guideline. The review should consider the resources required to implement the recommendations set out in Section 1 of this guideline, the people and processes involved and the timeline over which full implementation is envisaged. It is in the interests of people with diabetes that the implementation timeline is as rapid as possible.

Relevant local clinical guidelines, care pathways and protocols should be reviewed in the light of this guidance and revised accordingly.

The implementation of this guideline will build on the National Service Frameworks for Diabetes and the Diabetes Information Strategy in England and Wales and should form part of the service development plans for each local health community in England and Wales.

3.2 Audit

Suggested audit criteria are listed in Appendix D. These can be used as the basis for local clinical audit, at the discretion of those in practice.

4 Research recommendations

The following research recommendations have been identified for this NICE guideline, not as the most important research recommendations, but as those that are most representative of the full range of recommendations. The Guideline Development Group's full set of research recommendations is detailed in the full guideline produced by the National Collaborating Centre for Primary Care (see Section 5).

4.1 Therapeutic footwear should be evaluated for effectiveness and cost effectiveness in patients at higher risk of ulceration.

4.2 A coordinated and comprehensive trial programme is required for all aspects of foot ulcer treatment and care – notably, the effectiveness and cost effectiveness of different antibiotic regimens, wound dressings and other treatments for diabetic ulcer.

4.3 Further research is required to identify the appropriate level and combination of risk factors at which patients should be categorised as at high risk for ulceration and be offered attendance on a protection programme.

4.4 Research is required to identify strategies for ensuring ongoing care and evaluation for people with diabetes who are elderly or have mobility problems.

4.5 The use of standardised measures, including ulcer classification and outcome measures, in research studies would greatly enhance the ability of reviewers to undertake better analysis, including comparison of outcomes of interventions.

5 Full guideline

The National Institute for Clinical Excellence commissioned the development of this guidance from the National Collaborating Centre for Primary Care. The guideline development work was carried out by the School of Health and Related Research (ScHARR), University of Sheffield, a provider partner in the National Collaborating Centre for Primary Care. The Centre established a Guideline Development Group, which reviewed the evidence and developed the recommendations. The full guideline, *Type 2 Diabetes: Prevention and Management of Foot Problems, Revised Version*, is published by the National Collaborating Centre for Primary Care; it is available on the NICE website (www.nice.org.uk) and on the website of the National Electronic Library for Health (www.nelh.nhs.uk).

This guideline is an update of the guideline entitled *Clinical Guidelines and Evidence Review for Type 2 Diabetes: Prevention and Management of Foot Problems* originally published by the Royal College of General Practitioners*.

The members of the Guideline Development Group are listed in Appendix B. Information about the independent Guideline Review Panel is given in Appendix C.

The booklet *The Guideline Development Process – Information for the Public and the NHS* has more information about the Institute's guideline development process. It is available from the Institute's website and copies can also be ordered by telephoning 0870 1555 455 (quote reference N0038).

6 Related NICE guidance

6.1 Guidelines on the management of type 2 diabetes

This guideline is one of a series on the management of type 2 diabetes.

- National Institute for Clinical Excellence (2002) Management of type 2 diabetes: retinopathy – screening and early management. *Inherited Clinical Guideline* E. London: National Institute for Clinical Excellence. See www.nice.org.uk/Docref.asp?d=27922

* Hutchinson A, McIntosh A, Feder G, Home PD, et al. (2000) *Clinical Guidelines and Evidence Review for Type 2 Diabetes: Prevention and Management of Foot Problems*. London: Royal College of General Practitioners. Available from: www.rcgp.org.uk/clinspec/guidelines/diabetes/contents.asp

- National Institute for Clinical Excellence (2002) Management of type 2 diabetes: renal disease – prevention and early management. *Inherited Clinical Guideline* F. London: National Institute for Clinical Excellence. See www.nice.org.uk/Docref.asp?d=27924

- National Institute for Clinical Excellence (2002) Management of type 2 diabetes: management of blood glucose. *Inherited Clinical Guideline* G. London: National Institute for Clinical Excellence. See www.nice.org.uk/Docref.asp?d=36737

- National Institute for Clinical Excellence (2002) Management of type 2 diabetes: management of blood pressure and blood lipids. *Inherited Clinical Guideline* H. London: National Institute for Clinical Excellence. See www.nice.org.uk/Docref.asp?d=38564

6.2 Woundcare suite

The Institute is developing a suite of clinical guidelines on woundcare management, including the prevention of skin breakdown. Guidelines in the suite include the following.

- National Institute for Clinical Excellence (2003) Infection control: prevention of healthcare-associated infection in primary and community care. *NICE Clinical Guideline* No. 2. See www.nice.org.uk/cat.asp?c=71774

- National Institute for Clinical Excellence (2003) Pressure ulcer prevention: pressure ulcer risk assessment and prevention, including the use of pressure-relieving devices (beds, mattresses and overlays) for the prevention of pressure ulcers in primary and secondary care. *NICE Clinical Guideline* No. 7. See www.nice.org.uk/cat.asp?c=89897

- Management of pressure ulcers – guideline under development, planned for publication in May 2005. For further details, see www.nice.org.uk/cat.asp?c=33925

- Management of patients with venous leg ulcers – guideline developed by the Royal College of Nursing (RCN; see www.rcn.org.uk/resources/guidelines.php) and being updated by the RCN at the time this NICE guideline was issued

- The management of surgical wounds – guideline under development, planned for publication April 2006. For further details, see www.nice.org.uk/cat.asp?c=33930

- General principles of the management of wounds – guideline under development.

6.3 Technology appraisals

The Institute has issued the following technology appraisals relating to wound care or to type 2 diabetes.

- National Institute for Clinical Excellence (2001) Guidance on the use of debriding agents and specialist wound care clinics for difficult to heal surgical wounds. *NICE Technology Appraisal Guidance* No. 24. London: National Institute for Clinical Excellence. See www.nice.org.uk/Docref.asp?d=16584

- National Institute for Clinical Excellence (2002) Guidance on the use of long-acting insulin analogues for the treatment of diabetes – insulin glargine. *NICE Technology Appraisal Guidance* No. 53. London: National Institute for Clinical Excellence. See www.nice.org.uk/Docref.asp?d=16584

- National Institute for Clinical Excellence (2003) Glitazones for the treatment of type 2 diabetes. *NICE Technology Appraisal Guidance* No. 63. London: National Institute for Clinical Excellence. See www.nice.org.uk/Docref.asp?d=83264

- National Institute for Clinical Excellence (2003) Guidance on the use of patient education models for diabetes. *NICE Technology Appraisal Guidance* No. 60. London: National Institute for Clinical Excellence. See www.nice.org.uk/Docref.asp?d=68328

7 Review date

The process of reviewing the evidence is expected to begin 4 years after the date of issue of this guideline. Reviewing may begin earlier than 4 years if significant evidence that affects the guideline recommendations is identified sooner. The updated guideline will be available within 2 years of the start of the review process.

Other versions of this guideline

A short version of this guideline (a 'quick reference guide') is available from the NICE website (www.nice.org.uk) or from the NHS Response Line (telephone 0870 1555 455 and quote reference number N0409).

The full guideline, published by the National Collaborating Centre for Primary Care, is available on the NICE website (www.nice.org.uk) and on the website of the National Electronic Library for Health (www.nelh.nhs.uk).

Information for the public

A version of this guideline for people with type 2 diabetes, their families and carers, and the public is available from the NICE website or from the NHS Response Line (quote reference number N0410 for an English version and N0411 for a version in English and Welsh).

Appendix A: Grading scheme

The grading scheme and hierarchy of evidence used in this guideline (see Table) is adapted from Eccles and Mason (2001).

Recommendation grade	Evidence
A	Directly based on category I evidence
B	Directly based on: • category II evidence, **or** • extrapolated recommendation from category I evidence
C	Directly based on: • category III evidence, **or** • extrapolated recommendation from category I or II evidence
D	Directly based on: • category IV evidence, **or** • extrapolated recommendation from category I, II or III evidence
NICE 2003	Recommendation drawn from the NICE 2003 technology appraisal of patient education models for diabetes
Evidence category	**Source**
I	Evidence from: • meta-analysis of randomised controlled trials, or • at least one randomised controlled trial
II	Evidence from: • at least one controlled study without randomisation, or • at least one other type of quasiexperimental study'
III	Evidence from non-experimental descriptive studies, such as comparative studies, correlation studies and case–control studies
IV	Evidence from expert committee reports or opinions and/or clinical experience of respected authorities
Adapted from Eccles M, Mason J (2001) How to develop cost-conscious guidelines. *Health Technology Assessment* 5 (16)	

Appendix B: The Guideline Development Group

Dr Robert Young (Chair)*
Consultant Diabetologist, Salford Royal Hospital Trust, Hope Hospital, Manchester

Mrs Rose Chiverton
Patient Representative

Mrs Sheila Clarkson*
Diabetes Specialist Nurse, Blackburn Royal Infirmary

Mrs Alethea Foster*
Chief Podiatrist, Diabetic Foot Clinic, King's College Hospital, London

Dr Roger Gadsby
General Practitioner, Nuneaton and Senior Lecturer in Primary Care, University of Warwick

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Deputy Director, Sheffield Evidence Based Guidelines Programme, Public Health, ScHARR, University of Sheffield

Mr Michael O'Connor
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Senior Lecturer in Public Health, ScHARR, University of Sheffield

Dr Gerry Rayman
Consultant Diabetologist, Diabetes Centre, Ipswich Hospital

(* member of original guideline development group)

In attendance

Karen Beck
Public Health, ScHARR, University of Sheffield

Appendix C: The Guideline Review Panel

The Guideline Review Panel is an independent panel that oversees the development of the guideline and take responsibility for monitoring its quality. The Panel includes experts on guideline methodology, health professionals and people with experience of the issues affecting patients and carers. The members of the Guideline Review Panel were as follows.

Professor Mike Drummond
Director, Centre for Health Economics, University of York

Mr Barry Stables
Patient/Lay Representative

Dr Imogen Stephens
Joint Director of Public Health, Western Sussex Primary Care Trust

Dr Kev Hopayian
General Practitioner, Suffolk

Dr Robert Walker
Clinical Director, West Cumbria Primary Care Trust

Appendix D: Technical detail on the criteria for audit

Measures that could be used as a basis for an audit

Criterion	Exception	Definition of terms
1. The percentage of patients with recorded type 2 diabetes who have had a foot examination for neuropathy, peripheral pulses and deformity in the previous 15 months. *†	None	
2. The percentage of patients with recorded type 2 diabetes who have had their foot risk classified.	None	Low risk – people with diabetes who have normal sensation and palpable pulses. Increased risk – people with diabetes who have neuropathy or absent pulses. High risk – people who have neuropathy or absent pulses plus deformity or skin changes **or** previous ulcer. Foot ulcer
3. The percentage of patients with recorded type 2 diabetes with feet at increased risk and high risk of ulceration who attend a foot care protection service.	None	
4. The percentage of patients with recorded type 2 diabetes with a new ulcer in the previous 12 months.	None	

* Also contained in the National Diabetes Audit www.nhsia.nhs.uk/ncasp/pages/audit_topics/diabetes/default.asp?om=m1

† Also contained in the GP contract

Criterion	Exception	Definition of terms
5. The percentage of patients with type 2 diabetes and a previous ulcer who have developed a new ulcer in the past 12 months.	None	
6. The percentage of patients with recorded type 2 diabetes with a new below ankle amputation in the previous 12 months. *	None	
7. The percentage of patients with recorded type 2 diabetes with a new above ankle amputation in the previous 12 months. *	None	
8. The percentage of patients with recorded type 2 diabetes who have a record of an agreed management plan (including patient education) in the previous 15 months.	None	

* Also contained in the National Diabetes Audit www.nhsia.nhs.uk/ncasp/pages/audit_topics/diabetes/default.asp?om=m1

Appendix E: Patient education framework

The Guideline Development Group considered the issues of key points/topics that should be covered in patient education, particularly from the viewpoint of what people with diabetes need to know about foot care. The Group members recognised that it was not possible to give definitive answers in this area, but they produced a framework of key points that might provide a useful starting point for healthcare professionals providing or developing education materials on foot care for people with type 2 diabetes. This was developed from a consensus of the Guideline Development Group rather than from research literature, which is not available.

Patient education: key points to address

Education is an essential element in the empowerment of people with diabetes, helping an effective partnership between healthcare professional and individual develop, which is key in achieving effective care. Foot care should be considered an important part of self-care in people with diabetes, and as much part of a self-care routine as blood glucose control or diet.

Patient education/information needs to be tailored to meet each individual's needs. Some individuals, because of their personal circumstances or attitudes to their condition, may need increased levels of education, care and support.

A person with diabetes should expect to be offered information about the following.

- What they can expect in terms of care
- Self-care and self-monitoring
- When and where to seek advice
  - Details of the healthcare professional to contact if an individual feels their condition has changed and they need advice before their next routine appointment
  - Details of an alternative (out of hours) contact if an emergency arises (such as a new ulcer) and the usual contact professional is not available
- The possible consequences of neglecting the feet
- Management of symptoms (for example, pain, odour from ulcers).

Other information about foot care and other aspects of diabetes should also be offered as needed.

Key points to be included in patient education

For all people with diabetes, and people at low current risk of foot ulcers

- Self-care and self monitoring
  - Daily examination of feet for problems (colour change, swelling, breaks in the skin, pain or numbness)
  - Footwear (the importance of well fitting shoes and hosiery)
  - Hygiene (daily washing and careful drying)
  - Nail care
  - Dangers associated with practices such as skin removal (including corn removal)
  - Methods to help self-examination/monitoring (for example, the use of mirrors if mobility is limited)

- When to seek advice from a healthcare professional
  - If any colour change, swelling, breaks in the skin, pain or numbness is found
  - If self-care and monitoring is not possible or difficult (for example, because of reduced mobility)

- Possible consequences of neglecting the feet
  - Foot problems can often be prevented by good diabetes overall management as well as specific foot care
  - Prompt detection and management of any problems is important, thus the importance of seeking help as soon as a problem is noticed
  - Complications of diabetes such as neuropathy and ischaemia can lead to foot problems such as ulcers, infections, and in extreme cases gangrene and amputation

For people at increased or high risk of foot ulcers

The key points to be addressed for all people with diabetes are still important and should be addressed in patient education for people at increased or high risk of foot ulcers.

The following should also be addressed.

- If neuropathy is present, the resulting numbness means that problems may not be noticed, so extra care and vigilance is needed and additional precautions to keep feet protected is needed

- Every break in the skin is potentially serious

- Not walking barefooted

- Seeking help to deal with corns and calluses

- Dangers associated with over-the-counter preparations for foot problems (for example, the dangers of 'corn cures')

- Potential burning of numb feet
  - Checking bath temperatures
  - Avoiding hot water bottles, electric blankets, foot spas and sitting too close to fires

- Moisturising areas of dry skin

- Regular checking of footwear for areas that will cause friction or other problems

- Seeking help from a healthcare professional if footwear causes difficulties or problems

- Wearing specialist footwear if it has been prescribed/supplied

- Additional advice about foot care on holiday
  - Not wearing new shoes
  - Planning adequate rest periods to avoid additional stress on feet
  - When travelling by air, the importance of walking up and down aisles
  - Use of sun block on feet
  - Having a first aid kit and covering any sore places with a sterile dressing
  - Seeking help if problems develop
  - Holiday insurance issues (does it cover diabetes?)

For people with foot ulcers

The issues to be addressed for all people and those at increased or high risk should again be covered.

The following issues should also be covered.

- Every break in the skin is potentially serious

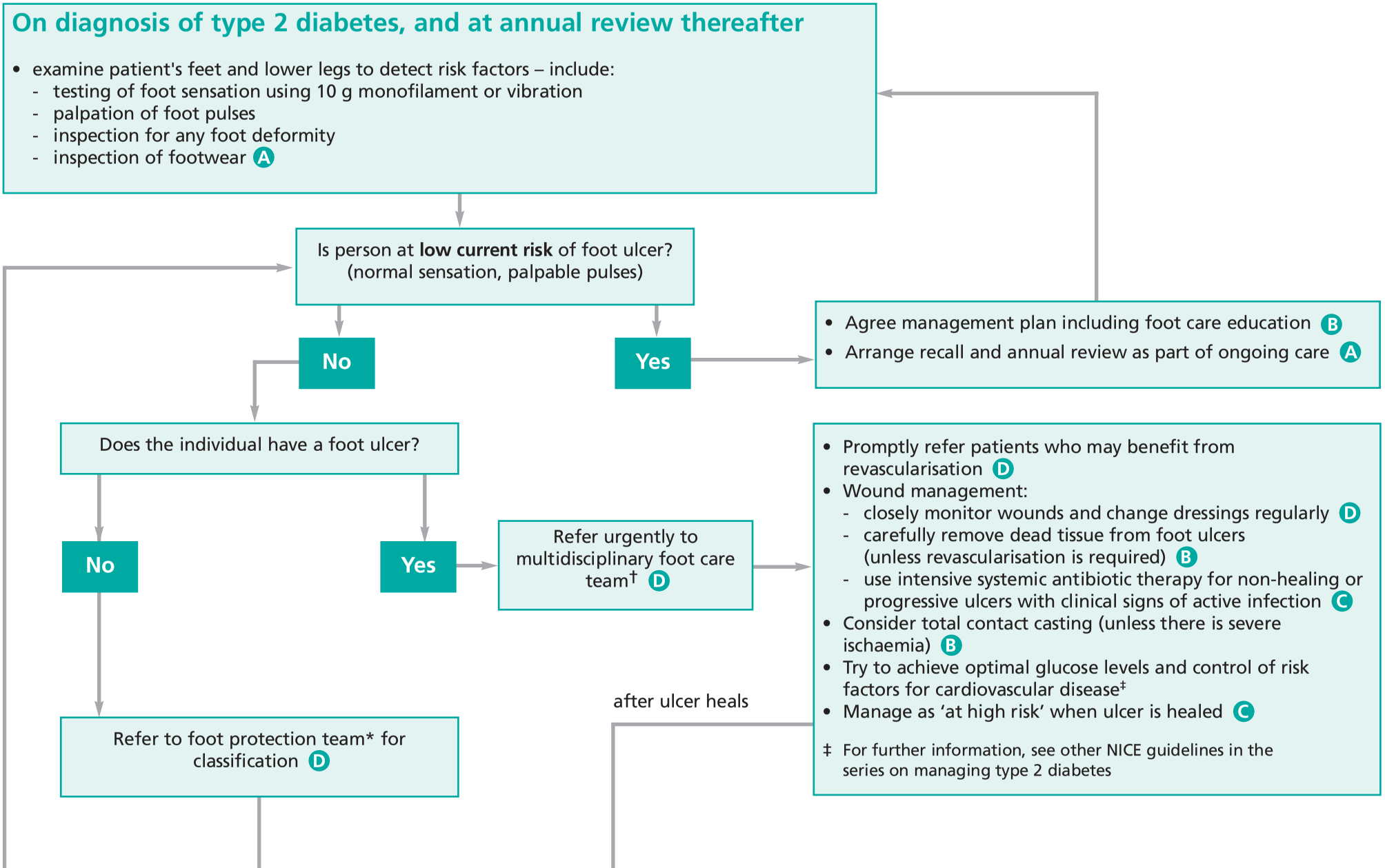
- Infection can develop with alarming rapidity

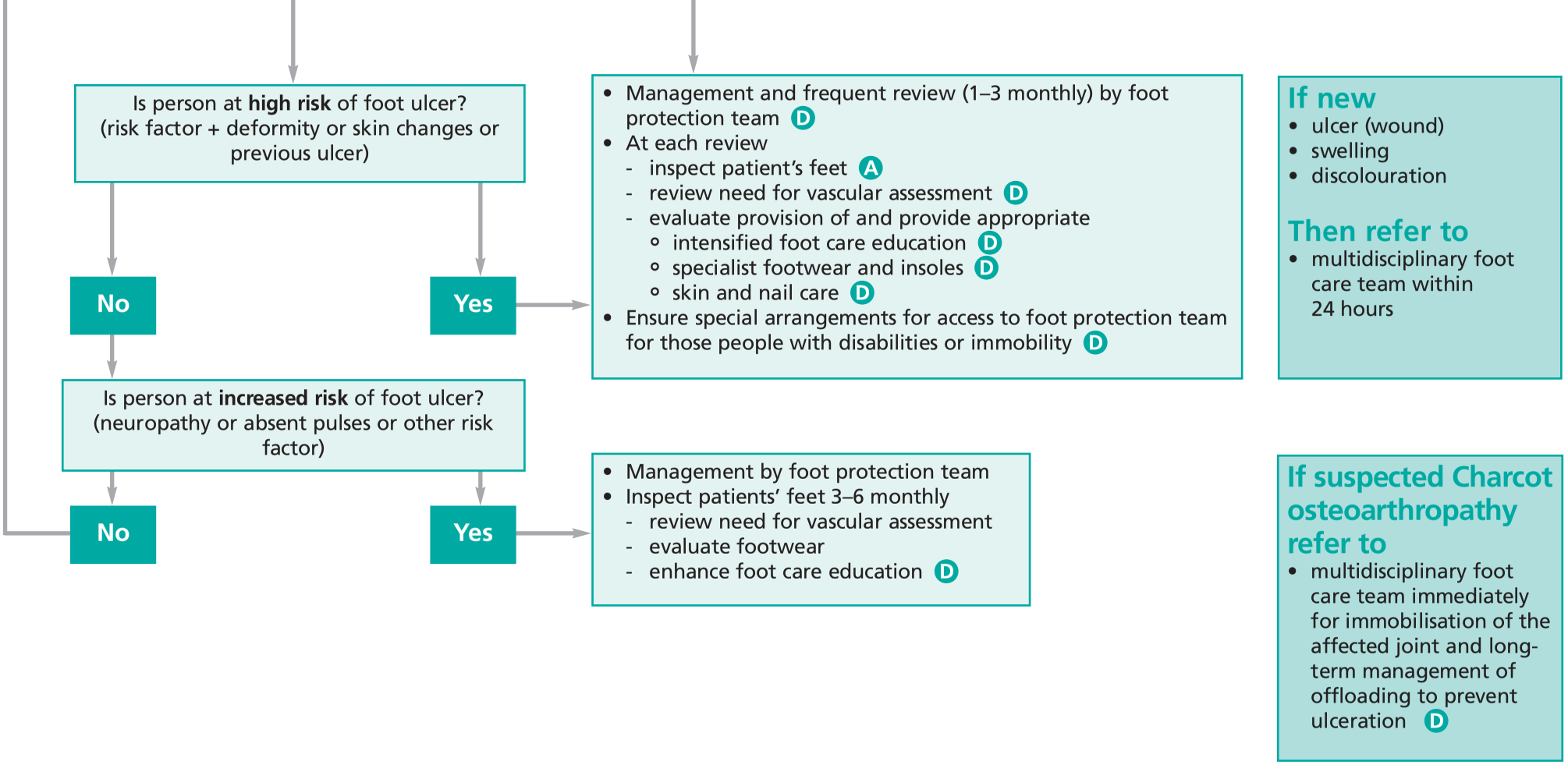
- Early detection and rapid treatment improve the chances of a good outcome

- Appropriate resting of foot/leg

- Signs and symptoms that healthcare professionals involved in the management of a foot ulcer should be told about
  - Changes in the ulcer
    - Increase in size
    - Colour
      - Redness of the skin round the ulcer
      - Bluish marks like bruises
      - Skin going black
      - Ulcer itself changed colour
    - Discharge
      - Ulcer wet where it was dry before
      - Blood or pus discharging from it
  - New ulcers or blistering
  - Pain (ulcer becomes painful or uncomfortable or foot is throbbing)
  - Smell (that is, foot smells strange/different)
  - Swelling (for example, shoe becomes tight)
  - Feeling unwell (fever, 'flu-like symptoms' or poorly controlled diabetes)

Appendix F: Pathway of care





* A team with expertise in protecting the foot; typically members of the team include podiatrists, orthotists and footcare specialists

† A team of highly trained specialist podiatrists and orthotists, nurses with training in dressing diabetic foot wounds and diabetologists with expertise in lower limb complications

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