Standard 11

All people with diabetes should be assessed for the risk of foot ulceration and, if required, receive regular review. Those with active foot problems should be referred to and treated by a multidisciplinary foot care team within recommended timeframes.

Key practice points

- People with diabetes are at increased risk of peripheral vascular disease and peripheral neuropathies.
- Foot screening is effective for identification of ulcers and complications.
- Māori and Pacific peoples have a higher incidence of ulceration leading to amputation.
- Individuals identified with high risk feet require intensive and lifelong management of their feet.

Read this standard in conjunction with the equality and diversity section in the Introduction to the Toolkit.

What the quality statement means for each audience

Service providers ensure access to appropriate treatment and review by a foot protection team for people with diabetes at risk of foot ulceration in accordance with national guidelines and locally agreed clinical pathways.

Health care professionals ensure they identify and manage people with diabetes at risk of foot ulceration in accordance with national guidelines and locally agreed clinical pathways.

Planners and funders ensure they commission services that provide access to regular review by a foot protection team for people with diabetes at risk of foot ulceration in accordance with national guidelines and locally agreed clinical pathways.

People with diabetes are assessed for foot ulceration and, if required, receive regular review and management from a team specialising in foot protection.

Introduction

Individuals with diabetes have increased risk of neuropathy and peripheral arterial disease (PAD), and more so when other associated risk factors (eg, smoking, hypertension and hypercholesterolemia) are present (Scottish Intercollegiate Guidelines Network [SIGN] 2010). Neuropathy and PAD are the main risk factors for development of ulcers, infection and lower limb amputation (Best Practice Advocacy Centre New Zealand 2010). However, neuropathy potentially is the leading risk factor for ulceration or amputation predominately because of unnoticed foot damage (Clayton et al 2009). It is important for individuals and health care professionals to be aware of the silent nature of neuropathy as more than 60% of ulcers are preceded by an episode of unnoticed foot damage or trauma (Clayton et al 2009). If PAD is also present, the risk of infection and amputation increases (American Diabetes Association 2003). Māori and Pacific Island people have higher risk of foot ulcer development progressing to lower limb amputation as type 2 diabetes in these populations occurs 10–20 years earlier than in other

populations (Grech et al nd). Foot ulcers affect a person's physical, emotional, and social wellbeing. As a result, these issues contribute to economic loss creating a huge public health burden (Rice et al 2014). Foot screening is effective for identification of risk for foot ulceration and complications (SIGN 2010).

Guidelines

Refer to **Scottish Intercollegiate Guidelines Network** (SIGN 2010) Management of Diabetes section 11 *Management of diabetic foot disease*. The document covers standards of care for risk stratification/triage, patient education, preventative footwear and orthoses, management of active foot disease, painful diabetic neuropathy, and a checklist for provision of information for individuals/carers in relation to foot disease in diabetes.

A tool (NZSSD – PodSIG 2014), such as the one recommended by SIGN, has been adapted for use in the NZ context by the New Zealand Society for Study of Diabetes (NZSSD) – Podiatry Special Interest Group (PodSIG) (2011) with permission of the Scottish Foot Action Group (SFAG). This tool acts as a national guide for developing integrated diabetes foot care pathways and to facilitate standardised access to care for people with diabetes related foot complications. This tool is being adopted by many District Health Boards (DHBs) and primary care podiatry programmes:
www.nzssd.org.nz/healthprofs/Primary%20diabetes%20foot%20screening%20and%20referral%20pathways%2005%2009%2013%20with%20intro.pdf

The **Best Practice Advocacy Centre New Zealand (BPAC)** (2010) *Screening and Management of 'The Diabetic Foot'* provides additional information for primary health care settings.

Additionally, the New Zealand Primary Care Handbook 2012, the Ministry of Health (2008) Diabetes and cardiovascular disease quality improvement plan and the Ministry of Health/DHB Allied health services podiatry for people with at risk/high risk feet Tier level three service specification (and Tier 1,2) provide further information.

Implementation advice

Refer to SIGN (2010) Management of Diabetes section 11 *Management of Diabetic Foot Disease.*

Access to foot care services is the basic expected care for people with diabetes.

Annual foot screening to ascertain risk is the basis of an integrated foot protection programme. SIGN suggests at least annual screening from diagnosis of diabetes is appropriate. Additionally they suggest foot screening data should be entered into an online screening tool to provide automatic risk stratification and a recommended management plan, including patient information. Refer to the Diabetes Foot Screening and Risk Stratification Tool developed by NZSSD – PodSIG (2014).

The **BPAC NZ** (2010) screening table suggests the following regarding the recommended frequency of examination for diabetic foot complications:

- confirmed diabetes – as soon as possible after diagnosis and annually thereafter
- first signs of foot problems identified or patient at high risk – every three to six months
- active ulceration and infection or very high risk – regular podiatry and multidisciplinary team assessment until active problems are resolved and then every one to three months.

A clear pathway of care should be in place from screening, through to general podiatry care and monitoring in the community, to accessing specialist podiatry care in the hospital setting. Wrap-around services including vascular, orthopaedic, nursing and allied health should be included in this pathway. Patients seen through an emergency department (ED) and or ward admissions with foot ulceration should have a referral to specialist podiatry services. Access can be via medical practices and/or community podiatry with patients being graded and referred as appropriate.

Funding should be in place for individuals to receive targeted foot care including:

- assessment and provision of services by a podiatrist on referral from a GP practice if a need is identified at an annual foot check (using screening tool)
- ongoing podiatry care and assessment where a need is identified by a podiatrist (access to Tier 3 service for active foot problems)
- access to ongoing podiatry care and assessment on discharge from Tier 3 service post active foot condition where deemed appropriate by the podiatrist
- access to footwear and offloading devices is important and needs to be timely.

Individuals identified with 'high risk' feet require ongoing access to funded podiatry services. Individuals who are identified as having 'high risk' feet via the screening tool need access to funded podiatry services on an ongoing basis, because as time progresses they often require more intensive input. Individuals with 'high risk' feet do not have isolated episodes of care, but require more intensive and lifelong management (Rice et al 2014).

All individuals with diabetes should receive written and oral advice about:

- how diabetes can affect feet
- why it is important to assess foot risk and regularly screen feet
- how to care for feet and when to seek help (SIGN 2010).

People with active foot disease should be referred to a MDT (Tier 3 service) – podiatrist, diabetes physician, orthotist, diabetes nurse specialist, vascular surgeon, orthopaedic surgeon, radiologist, wound specialist nurse, occupational therapist, etc.

Refer to the tool developed by NZSSD – PodSIG (2014). This paper also provides a good general overview of an in-depth foot assessment (Boulton et al 2008).

Refer to Ministry of Health DHB Allied health services podiatry for people with at risk/high risk feet tier level 3 service specification (and tiers 1 and 2).

Many referral processes are in place via Health Navigation tools available in medical practices.

Refer to SIGN (2010) section 11 *Management of diabetic foot disease*:
www.sign.ac.uk/pdf/sign116.pdf

Implementation examples / innovations

District Health Boards (DHBs)

Please refer to local clinical pathways.

Bay of Plenty District Health Board

Please refer to Bay Navigator.

Waitemata District Health Board

Waitemata DHB has implemented an integrated community podiatry service as an adjunct to the secondary MDT foot service for individuals with active foot complications. The initial implementation in Waitakere was associated with a marked decrease in amputations. This led to the implementation of the Save Our Soles community podiatry programme, which was district wide for all people that met the entry criteria domiciled in the WDHB catchment. Contact Waitemata DHB for more information.

Tairawhiti District Health Board

Tairawhiti DHB has a multidisciplinary team approach (podiatrist, diabetes CNS and wound care CNS, and the orthotics team and orthopaedic surgeon) aiming to reduce amputations. Midlands Health Network developed e-referral allowing GPs and practice nurses from primary care to refer directly to a community podiatrist or high risk foot clinic. The referral form is available online, accessed through TDH (Tairawhiti District Health Board 2013).

Canterbury DHB

The Integrated Diabetes Services Development Group (IDSDG) and primary health organisations (PHOs) are implementing a diabetes high-risk podiatry programme that will establish a best practice model of care with equitable access across Canterbury. Contact CDHB for more information.

Assessment tools

Structure

Evidence of local arrangements to ensure that all people with diabetes receive initial screening of feet on diagnosis.

Process

Newly diagnosed people with diabetes receive initial screening of feet in accordance with national guidelines and locally agreed clinical pathways.

Numerator	The number of people in the denominator receiving an initial foot screen
Denominator	The number of people with diabetes

Outcome

A baseline record of the condition of the feet of an individual with diabetes is established in order to:

a) highlight potential issues of foot deformation and loss of sensation that may lead to ulceration

b) provide comparison with ongoing monitoring.

Structure

Evidence of local arrangements to ensure that all people with diabetes receive ongoing monitoring in accordance with national guidelines and locally agreed clinical pathways.

Process

Individuals already diagnosed with diabetes receive ongoing monitoring of feet in accordance with national guidelines and locally agreed clinical pathways

Numerator	The number of people in the denominator receiving ongoing monitoring of feet
Denominator	The number of people currently diagnosed with diabetes

Outcome

Reduction of incidence of foot trauma, deformation and ulceration leading to development of high risk feet.

Structure

Evidence of local arrangements to ensure that people with diabetes at risk of foot ulceration receive regular review by a foot protection team in accordance with national guidelines and locally agreed clinical pathways.

Process

The proportion of people with diabetes at risk of foot ulceration who receive regular review by a foot protection team in accordance with national guidelines and locally agreed clinical pathways.

Numerator	The number of people in the denominator who receive regular review by a foot protection team in accordance with national guidelines and locally agreed clinical pathways
Denominator	The number of people with diabetes at risk of foot ulceration

Outcomes

- Reduced incidence of foot ulceration.
- Lower rates of lower limb amputation.

Structure

Evidence of local arrangements to ensure that people with diabetes with a foot problem requiring urgent medical attention are treated by a multidisciplinary foot care team within recommended timeframes.

Process

a) The proportion of people with diabetes with a foot problem requiring urgent medical attention referred to and treated by a multidisciplinary foot care team within recommended timeframes.

Numerator	The number of people in the denominator referred to and treated by a multidisciplinary foot care team within recommended timeframes
Denominator	The number of people with diabetes with a foot problem requiring urgent medical attention

b) The proportion of people with diabetes with a foot problem requiring urgent medical attention referred to a multidisciplinary foot care team, who are treated in accordance with national guidelines and locally agreed pathways

Numerator	The number of people in the denominator treated in accordance with national guidelines and locally agreed clinical pathways
Denominator	The number of people with diabetes with a foot problem requiring urgent medical attention referred to a multidisciplinary foot care team

Outcome

Reduced rates of lower limb amputation.

NZSSD Diabetes Foot Screening and Risk Stratification Tool

www.nzssd.org.nz/healthprofs/Primary%20diabetes%20foot%20screening%20and%20referral%20pathways%2005%2009%2013%20with%20intro.pdf

Resources

Refer to **SIGN** (2010) section 11 *Management of Diabetic Foot Disease*.

NZSSD: Diabetes Foot Screening and Risk Stratification Tool
www.nzssd.org.nz/
Refer to the tool developed by NZSSD – PodSIG (2014). This paper also provides a good general overview of an in-depth foot assessment (Boulton et al 2008).

Health Navigator diabetes how to treat your feet page: www.healthnavigator.org.nz/health-topics/diabetes-foot-care/

Diabetes New Zealand Pamphlet on diabetes and how to care for your feet:
www.diabetes.org.nz/resources/pamphlets#Pamphlets

Diabetes New Zealand
www.diabetes.org.nz/about_diabetes/complications_of_diabetes/feet

Massachusetts Department of Public Health DM prevention and control programme feet brochure: http://files.hria.org/files/DB707.pdf

LEAP (lower extremity amputation prevention) www.hrsa.gov/hansensdisease/leap/
Five step LEAP programme:
1. Annual foot screening
2. Patient education
3. Daily self-inspection
4. Footwear selection
5. Management of simple foot problems

Foot care for a lifetime brochure HRSA
US Department of Health and Human Services Health Resources and Services Administration Health care Systems Bureau National Hansen's Disease Programs:
www.hrsa.gov/hansensdisease/leap/footcareforalifetime.pdf

National Institute for Health and Care Excellence (NICE)
In hospital care of foot pathway information for patients
Inpatient management of diabetic foot problems: www.nice.org.uk/guidance/cg119

Type 2 diabetes foot problems: Prevention and management of foot problems:
www.nice.org.uk/guidance/cg10

Assessment of feet using the *Touch the toes test* can be undertaken in an individual's own home by a member of their family/whānau, but is not a substitute for annual review by an appropriate health care professional (Rayman et al 2011). There is a video or full instructions (pdf) available on the Diabetes UK website (Diabetes UK 2012).

References

American Diabetes Association. 2003. Peripheral arterial disease in people with diabetes. *Diabetes Care* 26(12): 3333–41. Retrieved from www.podmed.com/userfiles/file/Articles/ADA-PAD%20in%20Diabetics.pdf.

Best Practice Advocacy Centre New Zealand. 2010. Screening and management of 'the diabetic foot'. *Best Practice Journal* 31(October), 34-46. Retrieved from www.bpac.org.nz/BPJ/2010/october/diabeticfoot.aspx.

Boulton A, Armstrong D, Albert S, et al. 2008. Comprehensive foot examination and risk assessment. *Diabetes Care* 31(8): 1679–85. doi: 10.2337/dc08-9021.

Clayton W, Elasy T. 2009. A review of the pathophysiology, classification, and treatment of foot ulcers in diabetic patients. *Clinical Diabetes* 27(2): 52–8. doi: 10.2337/diaclin.27.2.52.

Diabetes UK. 2012. *Touch the Toes Test*. Retrieved from www.diabetes.org.uk/Guide-to-diabetes/Complications/Feet/Touch-the-Toes-test/.

Grech R, Dissanayake A, NZSSD PodSIG. nd. *Diabetic Foot Disease*. Retrieved from www.nzssd.org.nz/documents/misc/Diabetic%20Foot%20Disease%20webemail%20(2).doc.

New Zealand Society for the Study of Diabetes – Podiatry Special Interest Group. 2011. *Health Professionals Section – diabetic foot disease*. Retrieved from www.nzssd.org.nz/healthprofs/Primary%20diabetes%20foot%20screening%20and%20referral%20pathways%2005%2009%2013%20with%20intro.pdf.

New Zealand Society for the Study of Diabetes – Podiatry Special Interest Group. 2014. *Diabetes Foot Screening and Risk Stratification Tool*. Retrieved from www.nzssd.org.nz/healthprofs/Primary%20diabetes%20foot%20screening%20and%20referral%20pathways%2005%2009%2013%20with%20intro.pdf.

Rayman G, Vas P, Barker N, et al. 2011. The Ipswich Touch Test: A simple and novel method to identify inpatients with diabetes at risk of foot ulceration. *Diabetes Care* 34(7): 1517–18. doi: 10.2337/dc11-0156.

Rice J, Desai U, Cummings A, et al. 2014. Burden of diabetic foot ulcers for medicare and private insurers. *Diabetes Care* 37(3): 651–8. doi: 10.2337/dc13-2176.

Scottish Intercollegiate Guidelines Network. 2010. *116, Management of Diabetes: A national clinical guideline*. Edinburgh, Scotland: SIGN. Retrieved from www.sign.ac.uk/pdf/sign116.pdf.

Tairawhiti District Health Board. 2013. A 'cultural change' in health care ... happening right here at TDH. *The Nerve*. Retrieved from www.tdh.org.nz/assets/The-Nerve/July-2013.pdf.