Standard 9

All people with diabetes should have access to regular retinal photography or an eye examination, with subsequent specialist treatment if necessary.

Key practice points

- All people with diabetes are at risk of developing retinopathy. Māori and Pacific peoples have a higher incidence of moderate and severe diabetic retinopathy.
- There are minimum screening and monitoring requirements. Substantial available evidence shows cost effectiveness and benefits of eye screening and monitoring.
- The New Zealand National Diabetes Retinal Screening Grading System and Referral Guidelines (Ministry of Health 2008) provide guidance for screening and monitoring. These are currently under review.

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 that people with diabetes have access to regular retinal photography or an eye examination, with subsequent specialist treatment if necessary.

Health care professionals ensure they are competent to assess diabetic eye disease and manage it appropriately.

Planners and funders ensure they commission services that provide people with diabetes access to regular retinal photography or an eye examination, with subsequent specialist treatment if necessary.

People with diabetes should have access to regular retinal photography or an eye examination, with subsequent specialist treatment if necessary.

Introduction

All people with diabetes are at risk of developing retinopathy (Ministry of Health 2008). Diabetic retinopathy (DR) is a chronic, progressive, and potentially sight-threatening disease of the eye (The Royal College of Ophthalmologists 2012). Studies suggest Māori and Pacific Island peoples have a higher incidence of moderate and severe diabetic retinopathy than New Zealanders of European descent (Papali'i-Curtin et al 2013; Simmons et al 2007). The most significant risk factor for DR is time since diagnosis (Ministry of Health 2008), but prolonged elevated blood glucose (hyperglycaemia) and other conditions linked to diabetes such as high blood pressure (hypertension) also contribute to development of the condition (Ministry of Health 2008; The Royal College of Ophthalmologists 2012). Prompt referral after diagnosis of diabetes (type 2) and five years post diagnosis (type 1) and regular screening and monitoring thereafter are imperative because DR is often asymptomatic and damage to the eye may have occurred prior to a diagnosis of diabetes (American Diabetes Association 2014).

Guidelines

The New Zealand guidelines referred to for DR screening are the **National Diabetes Retinal Screening Grading System and Referral Guidelines** (Ministry of Health 2008). These are based on available evidence about retinal screening and referral and are currently undergoing review. The guidelines are specifically for ophthalmologists, optometrists and those involved in photographic retinal screening but are a relevant reference tool in order to provide a nationally consistent approach for screening, recall and referral for individuals diagnosed with diabetes. A summary as it relates to Standard 9 is as follows:

- all people with diabetes are at risk of developing retinopathy
- duration of diabetes is one of the most important factors determining presence of diabetic retinopathy (DR)
- substantial evidence is available showing the cost effectiveness and benefits of eye screening as part of DR prevention and prevention of loss of vision.

The **Screening for Diabetic Retinopathy in Primary Care** (The Best Practice Advocacy Centre New Zealand 2010) is a useful document for other health care providers/professionals. It contains background, a referral process for screening, screening intervals and methods, management suggestions for risk factors for DR and a summary of DR characteristics and its treatment.

Implementation advice

Guidelines for the *minimum* intervals for retinal monitoring (Ministry of Health 2008, p 6; Associate Professor Gordon Sanderson, personal communication, 18 June 2014) are presented below.

Retinal screening	Type 1 diabetes	Type 2 diabetes
Intervals for screening	Adult – screen when the duration of diabetes is more than five years. Children – Screening can be delayed until puberty or five years after diagnosis, whichever is the earlier. * Regular retinal screening should be conducted at least every two years if no abnormality is detected.	All patients should be screened as soon as possible after diagnosis.
Retinal/photo monitoring	Once any diabetic retinopathy is detected, the frequency of the assessments will need to be increased depending on the severity of the retinopathy and the risk factors for progression to sight-threatening disease. More information can be found on Table 5 – Grading for Diabetic Retinopathy (section 4.2) (Ministry of Health 2008).	
During pregnancy	* All pregnant women should be screened in the first trimester of their pregnancy. Those who have no retinopathy and no clinical modifiers can then continue their normal two-yearly screening – see 'Table 7 – Grading and referral guidelines for women who have diabetes and are also pregnant' (section 4.4) for more information. Those with: • some retinopathy will require more frequent screening or monitoring throughout the pregnancy • more advanced retinopathy will require referral to an ophthalmologist for ongoing review during pregnancy. Also see Section 4.2, Grading for Diabetic Retinopathy.	

* Some patients may require increased or reduced 'ongoing monitoring' (eg, patients with diet controlled diabetes with HbA1c less than 53 mmol/mol). These intervals are guidelines and ophthalmologists may vary monitoring intervals providing sensitivity and quality are not compromised.

Additional considerations

- Retinal photo quality assurance programmes should be also implemented, and accredited photo screening and photo grading training programmes should be developed (Diabetes Workforce Service Review) www.health.govt.nz/system/files/documents/pages/diabetes-workforce-service-review.pdf and Hutchins et al (2012).
- Training on requirements for correct data entry into the Ophthalmology Digital Healthcare Database introduced July 2011. See also Service Specifications Tier 2 and 3 and information on pages 16–20 of Ministry of Health (2008) document relating to minimum data set for each enrolled person and for each retinal screening examination.
- An information system that can provide:
  - an effective recall system for individuals diagnosed with DR
  - referral for DR assessment/follow up from any point of contact
  - access to complete data records by all health care providers involved in an individual's care
  - data collection for nationwide monitoring generated from key national monitoring indicators such as retinopathy grades and referral to a monitoring programme and/or treatment
  - reporting of outcomes advancing reduction of inequalities
  - consideration around workforce issues to meet demand of specialist screening
  - targeted, culturally appropriate screening programmes for Pacific peoples.

Pacific people have significantly higher prevalence of diabetes than all other ethnic groups, affecting nearly 8.4% of the population. In comparison, Māori have significantly lower prevalence with 4.8% of the population affected (Health Quality and Safety Commission New Zealand 2014). However, rates for Māori are still higher than the general population. The Health Quality and Safety Commission data included all ages so comparison with other figures specific to the adult population is not possible (Health Quality and Safety Commission New Zealand 2014).

Implementation examples / innovations

Whangaroa Health Services Trust

Diabetes clinic at: www.maoridiabetes.co.nz/index.php?page=59.

Meeting the needs of Māori with diabetes

A master's thesis evaluating a nurse-led service (Janssen 2008): http://researcharchive.vuw.ac.nz/xmlui/bitstream/handle/10063/884/thesis.pdf?sequence=2.

Health Navigator NZ and Auckland District Health Board (ADHB) 2011

Self-management support toolkit for frontline health care practitioners working with people who have chronic disease or long-term health conditions: www.wrpho.org.nz/documents/self_management_toolkit.pdf.

Canterbury DHB

The community delivery of diabetes retinal screening, implemented in February 2013, has resulted in at least 1000 additional people screened by one of the six contracted optometrists, during 2013, and the mobile camera providing screening clinics in Kaikoura, Ashburton and Christchurch Prison (www.cdhb.health.nz/About-CDHB/Who-We-Are/CDHB-Board-Committees/Documents/Board%202014%2013%20February%20Open%20Agenda%20PDF%20Copy.pdf).

Targeting Diabetes and Cardiovascular Disease

Better Diabetes and Cardiovascular Services (Ministry of Health National Health Board): www.health.govt.nz/system/files/documents/publications/targeting-diabetes-cardiovascular-disease.pdf.

Mangere Community Health Trust Diabetic Eye Screening Service

This service is free to patients and available from many general practice rooms and from established clinics in Mangere, Otara and Papakura where routine diabetic care is provided. The Trust's mobile screening service is currently operating at 21 sites throughout Counties Manukau. The Trust has raised funds to purchase two digital retinal cameras as well as vans for transporting the equipment. They currently operate 8 to 12 clinics a week around South Auckland: www.mangerehealth.org.nz/services-list/retinal-screening/.

Assessment tools

Structure

Evidence of local arrangements to ensure that people with diabetes are assessed at required intervals for the risk and presence of diabetic eye disease, and if present, are managed appropriately.

Process

The proportion of people with diabetes who are assessed at required intervals for the risk and presence of diabetic eye disease.

Numerator	The number of people in the denominator who are assessed at required intervals for the risk and presence of diabetic eye disease.
Denominator	The number of people with diabetes

The proportion of people with diabetic eye disease who are monitored and managed appropriately.

Numerator	The number of people in the denominator receiving retinal monitoring at required intervals and appropriate management
Denominator	The number of people with diabetic eye disease

Outcome

Reduction in the incidence of diabetic eye disease and related blindness.

The Ministry of Health Retinal Screening system and referral guidelines have specific data collection requirements: www.health.govt.nz/publication/national-diabetes-retinal-screening-grading-system-and-referral-guidelines-2006-and-resources-2008.

Resources

American Diabetes Association – Standards of Medical care in diabetes

- http://care.diabetesjournals.org/content/37/Supplement_1/S14.full.pdf+html

Diabetes New Zealand

- www.diabetes.org.nz/about_diabetes/complications_of_diabetes/eyes

Diabetes Review

- www.bestpractice.net.nz/feat_mod_diab.php

The Common Form

- www.bestpractice.net.nz/feat_mod_chronicCare.php

New Zealand brochures in Te Reo, Pacific languages

- https://www.healthed.govt.nz/resource/keeping-well-diabetes-te-reo-m%C4%81ori-version
- https://www.healthed.govt.nz/resource/keeping-well-diabetes-cook-islands-m%C4%81ori-version
- https://www.healthed.govt.nz/resource/keeping-well-diabetes-niuean-version
- https://www.healthed.govt.nz/resource/keeping-well-diabetes-s%C4%81moan-version
- https://www.healthed.govt.nz/resource/keeping-well-diabetes-tongan-version

Everybody.co.nz diabetes and what is diabetic retinopathy?

- www.everybody.co.nz/page-8756cae3-9f3c-4190-9c5a-135ff70348ce.aspx

Massachusetts Health Department Clearing House Department Health

- https://massclearinghouse.ehs.state.ma.us/product/DB704.html

Massachusetts Department of Public Health Diabetes Prevention and Control Programme 'How to Protect your Eyes' brochure

- http://files.hria.org/files/DB704.pdf

Diabetes NZ – Diabetes and your eyes

- www.diabetes.org.nz/about_diabetes/complications_of_diabetes/eyes

Health Mentor Online – Resources for people with diabetes

- www.healthmentoronline.com

References

American Diabetes Association. 2014. Standards of medical care in diabetes – 2014. *Diabetes Care* 27(Suppl 1): S14–S80. doi: 10.2337/dc14-S014.

Best Practice Advocacy Centre New Zealand. 2010. Screening for diabetic retinopathy in primary care. *Best Practice Journal* 30(August). Retrieved from www.bpac.org.nz/BPJ/2010/August/contents.aspx.

Health Quality and Safety Commission New Zealand. 2014. *Atlas of Healthcare Variation – Diabetes*. Retrieved from www.hqsc.govt.nz/our-programmes/health-quality-evaluation/projects/atlas-of-healthcare-variation/diabetes/.

Ministry of Health. 2008. *National Diabetes Retinal Screening Grading System and Referral Guidelines 2006*. Wellington: Ministry of Health.

Hutchins E, Coppell K, Morris A, et al. 2012. Diabetic retinopathy screening in New Zealand requires improvement: Results from a multi-centre audit. *Australian and New Zealand Journal of Public Health* 36(3): 257–62. doi: 10.1111/j.1753-6405.2012.00841.x.

Papali'i-Curtin A, Dalziel D. 2013. Prevalence of diabetic retinopathy and maculopathy in Northland, New Zealand: 2011–2012. *The New Zealand Medical Journal* 126(1383): 20–8. Retreived from http://journal.nzma.org.nz/journal/126-1383/5847/.

Simmons D, Clover G, Hope C. 2007. Ethnic differences in diabetic retinopathy. *Diabetic Medicine* 24(10): 1093–8. doi: 10.1111/j.1464-5491.2007.02227.x.

The Royal College of Ophthalmologists. 2012. *Diabetic Retinopathy Guidelines*. London, UK: Scientific Department, The Royal College of Ophthalmologists.