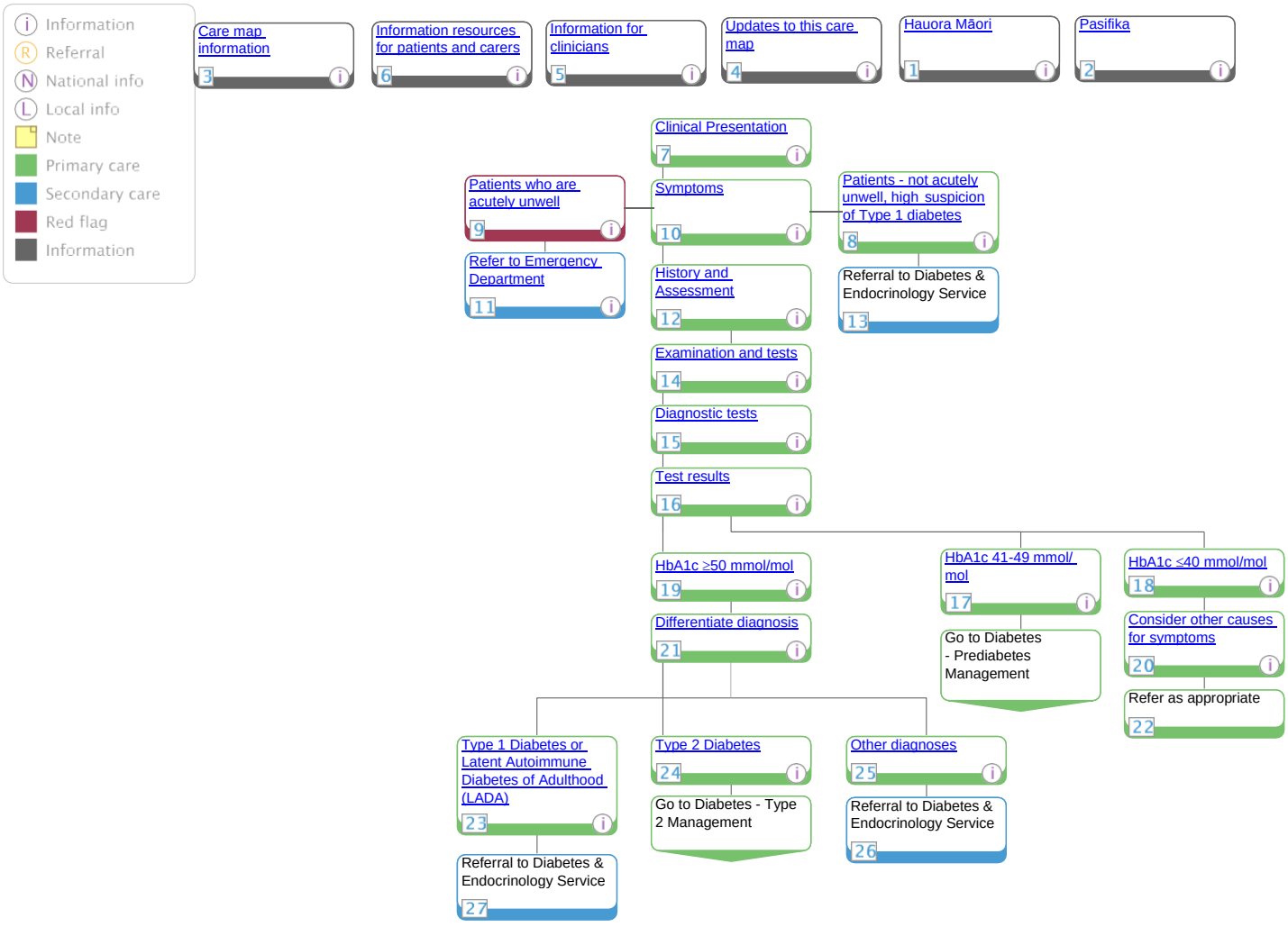
Diabetes - Suspected

Medicine > Endocrinology > Diabetes



1. Hauora Māori

Māori are a diverse people and whilst there is no single Māori identity, it is vital practitioners offer culturally appropriate care when working with Māori Whānau. It is important for practitioners to have a baseline understanding of the issues surrounding Māori health. This knowledge can be actualised by (not in any order of priority):

- acknowledging Te Whare Tapa Whā (Māori model of health) when working with Māori Whānau
- asking Māori clients if they would like their Whānau or significant others to be involved in assessment and treatment
- asking Māori clients about any particular cultural beliefs they or their Whānau have that might impact on assessment and treatment of the particular health issue (Cultural issues)
- consider the importance of whānaungatanga (making meaningful connections) with their Māori client / Whānau
- knowledge of Whānau Ora, Te Ara Whānau Ora and referring to Whānau Ora Navigators where appropriate
- having a historical overview of legislation that has impacted on Māori well-being

For further information:

- Hauora Māori
- Central PHO Māori Health website

2. Pasifika

Pacific Cultural Guidelines (Central PHO) 6MB file

Our Pasifika community:

- is a diverse and dynamic population:
  - more than 22 nations represented in New Zealand
  - each with their own unique culture, language, history, and health status
  - share many similarities which we have shared with you here in order to help you work with Pasifika patients more effectively

The main Pacific nations in New Zealand are:

- Samoa, Cook Islands, Fiji, Tonga, Niue, Tokelau and Tuvalu

Acknowledging *The FonoFale Model (pasifika model of health)* when working with Pasifika peoples and families.

Acknowledging general pacific guidelines when working with Pasifika peoples and families:

- Cultural protocols and greetings
- Building relationships with your pasifika patients
- Involving family support, involving religion, during assessments and in the hospital
- Home visits
- Contact information

Pasifika Health Service

The Pasifika Health Service is a service provided free of charge for:

- all Pasifika people living in Manawatu, Horowhenua, Tararua and Otaki who have long term conditions
- all Pasifika mothers and children aged 0-5 years
- an appointment can be made by the patient, doctor or nurse
- the Pasifika Health Service contact details are:
  - Palmerston North Office - 06 354 9107
  - Horowhenua Office - 06 367 6433
- the Pasifika Health Service brochure

Additional resources:

- Ala Mo'ui - Pathways to Pacific Health and Wellbeing 2014-2018
- Primary care for pacific people: a pacific health systems approach

3. Care map information

Scope
Diagnosis of Diabetes Mellitis in adults

Definition
The term diabetes mellitis describes a metabolic disorder of multiple aetiology characterised by chronic hyperglycaemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action, or both. The effects of diabetes mellitis include long-term damage, dysfunction and failure of various organs

Abbreviations
ACE Inhibitor - Angiotensin Converting Enzyme Inhibitor
ARB - Angiotensin Receptor Blocker
ARC - Aged Residential Care
BMI - Body Mass Index
CHO - Carbohydrate
DKA - Diabetic ketoacidosis
eGFR - Estimated Glomerular Filtration Rate
GI - Glycaemic index
HbA1c - Glycated haemoglobin
HHNS - Diabetic hyperosmolar hyperglycaemic non-ketotic syndrome
MODY - Maturity onset diabetes in youth
NDNKSF - National Diabetes Nursing Knowledge and Skills Framework
OGTT - Oral glucose tolerance test.

References:
See Provenance Certificate for full list of references.

4. Updates to this care map

Date of publication: May 2013.
Interim update: October 2017.

This care map has been updated in line with consideration to evidenced based guidelines.

For further information on contributors and references please see the care map's Provenance.
NB: This information appears on each page of this care map.

5. Information for clinicians

NZ Primary Care Handbook 2012
Diabetes NZ - About Diabetes and Living with Diabetes brochure
Diabetes NZ - Staying Well with type 2 diabetes booklet
Health Navigator- Diabetes
Heart Foundation (website)
Healthy Eating

Diabetes NZ - Diabetes and healthy food choices
NZ Heart Foundation: A guide to heart healthy eating
Ministry of Health: Food and physical activity

Physical Activity

My Health myself – Self-Management Course:

- Info about the course including registration criteria
- Referral Form

PETALs -Horowhenua:

- PETALs brochure
- PETALs referral

MHT Diabetes Trust Prediabetes and Diabetes structured education programmes

Central PHO referral criteria
THINK Hauora Clinical Dietitians
THINK Hauora Physical Activity Educators
THINK Hauora Clinical community Nurse LTC
Green Prescription

6. Information resources for patients and carers

Diabetes NZ - About Diabetes and Living with Diabetes brochure
Diabetes NZ - Staying Well with type 2 diabetes booklet
Health Navigator - Diabetes
Heart Foundation (website)
Healthy Eating
Diabetes NZ - Diabetes and healthy food choices
NZ Heart Foundation: A guide to heart healthy eating
Ministry of Health: Food and physical activity
Physical Activity

My Health myself – Self-Management Course:

- Info about the course including registration criteria
- Referral Form

PETALs -Horowhenua:

- PETALs brochure
- PETALs referral

MHT Diabetes Trust Prediabetes and Diabetes structured education programmes

7. Clinical Presentation

Diabetes can present as a hyperglycaemic emergency, symptomatically or be discovered during a routine health check.
Diabetes may be identified during a routine health check if:

- glucosuria and/or elevated blood glucose level> 8.0mmol/l is found
- confirmation will require a diagnostic HbA1c test

On occasions type 2 diabetes may not be diagnosed until the person presents with complications of diabetes

High risk groups include:

- Young adults (BMI ≥ 30 kgm-2 or ≥27 kg m-2 in Indo-Asian)
- there is a family history of early onset type 2 diabetes or
- they are of Maori, Pacific or Indo-Asian ethnicity

8. Patients – not acutely unwell, high suspicion of Type 1 diabetes

Blood glucose levels ≥ 10 mmol/l

Blood ketones < 0.6 mmol/l

Haemodynamically stable

Not dehydrated

9. Patients who are acutely unwell

Particular red flags include:

- altered consciousness
- haemodynamic instability (low blood pressure, rapid heart rate, poor peripheral perfusion)
- concurrent illness e.g. pneumonia, myocardial infarction

In patients who are acutely unwell:

- if Diabetes Mellitus suspected and patient presents with:
  - blood ketones >0.6 (recommended test *)
  - urine ketones ≥ moderate
  - blood glucose level >15

Refer urgently to Emergency Department (ED) as this may indicate the patient has diabetic ketoacidosis (DKA) or diabetic hyperosmolar hyperglycaemic non-ketotic syndrome (HHNKS).

* Optium blood Ketone meter can be ordered through MPSO free of charge

10. Symptoms

People may present with any of the following symptoms of hyperglycaemia :

- polydipsia (thirst)
- polyuria (urinary frequency)
- nocturia (urinary frequency at night)
- blurred vision
- weight loss
- tiredness/weakness
- recurrent infections e.g. urinary tract infection, thrush
- skin infections that are slow or difficult to heal

Note: some people may be asymptomatic

11. Refer to Emergency Department

(*Add details of referral)*

12. History and Assessment

Ask about:

Personal and/or family history of:

- diabetes (T1 or T2)
- cardiovascular disease (CVD)
- cerebrovascular disease
- lipid abnormalities
- symptoms of hyperglycaemia (polydipsia, polyuria, nocturia and blurred vision)
- autoimmune disease (coeliac disease, rheumatoid arthritis)
- meal pattern
- weight history
- risk factors for coronary artery disease:
  - smoking
  - hypertension
  - obesity (particularly central obesity)
  - dyslipidaemia
- physical activity levels
- previous or current infections, especially skin, foot, dental and genito-urinary
- features of any complications:
  - visual impairment
  - CVD
  - renal disease
  - neuropathy
  - foot disease
  - sexual dysfunction
- current medications (prescribed, over the counter or alternative therapies)
- treatment of other conditions, including endocrine, mental health and eating disorders
- psychosocial, cultural or economic factors that may affect management (Refer to Hauora Māori and Pacific nodes)
- use of alcohol or drugs

Gestational history:

- history of gestational diabetes
- delivery of a baby weighing more than 4.08kg (9lbs)
- pre-eclampsia
- stillbirth

Contraception, reproductive and sexual history

14. Examination and tests

Should include:

- random blood glucose level (capillary) - refer to diagnostic criteria. **Do not** diagnose on basis of capillary blood glucose level

- blood ketone (recommended test*) or urinary ketone dipstick
- blood pressure
- abdominal examination – hepatomegaly (haemochromatosis, fatty liver)
- skin examination:
  - infections or diseases such as acanthosis nigricans, xanthoma
- neurological:
  - sensation in hand and feet
  - wasting of muscles
  - deep tendon reflexes
- measure weight, height, waist circumference and calculate BMI (kg/m2)
  - normal weight BMI of 18.5–24.9 kg/m2
  - overweight BMI of 25.0–29.9 kg/m2
  - obese BMI of 30 kg/m2 or greater

* Optium blood Ketone meter can be ordered through MPSO free of charge

15. Diagnostic tests

The diagnosis of diabetes is made on the basis of a laboratory measured HbA1c or venous plasma glucose measurements:

- An HbA1c is the New Zealand Society for the Study of Diabetes (NZSSD) recommended diagnostic screening test for diagnosing diabetes.
- It should be measured by an accredited laboratory. Point-of-care assays are not sufficiently accurate for use in diagnosis
- If it is not possible to measure HbA1c or there are concerns about its validity, then a fasting plasma glucose is recommended
- HbA1c can be misleading in some circumstances (eg, falsely low in patients with increased red blood cell turnover or post blood transfusion, falsely high in some haemoglobinopathies, some ethnic differences in rate of Hb glycation)
- An oral glucose tolerance test (OGTT) should be used where there is uncertainty about the validity of HbA1c measures in specific patients (eg, in the presence of haemoglobinopathy or abnormal red cell turnover) or where there are special clinical reasons

NZ Primary Care Handbook 2012 (pgs 46 & 47)

HbA1c alone should not be used to diagnose diabetes in the following list.

Clinical presentations/symptoms should also be considered:

- patients younger than age 18 years
- pregnant women
- women who are 2 months post-partum
- patients with suspected acute onset of type 1 diabetes
- patients with symptoms of diabetes for less than 2 months
- acutely ill patients at high diabetes risk
- patients with acute pancreatic damage including surgery
- patients with end stage chronic kidney disease
- patients with HIV infection
- medication that may cause a risk in glucose, eg corticosteroids

Other conditions that may interfere with interpretation include:

- chronic liver disease
- haemoglobinopathies
- splenomegaly or splenectomy
- alcoholism
- recent transfusion

- blood loss
- haemolytic anaemia

16. Test results

NZ Primary Care Handbook 2012 (page 48)

*When HbA1c and fasting plasma glucose are discordant with regard to diagnosis of diabetes, repeat testing at an interval of 3 months is recommended. The test that is above the diagnostic cut point should be repeated – if the second test remains above the diagnostic threshold then diabetes is confirmed. If the second result is discordant with the first, then subsequent repeat testing at intervals of 3–6 months is recommended. Patients with discordant results are likely to have test results near the diagnostic threshold.

17. HbA1c 41-49 mmol/mol

HbA1c41-49 mmol/mol and, if measured, fasting plasma glucose 6.1-6.9 mmol/L.

Advise on diet and lifestyle modification. If over 35 years, a full cardiovascular risk assessment and appropriate management is indicated

results indicate **'prediabetes'**

18. HbA1c ≤40 mmol/mol

HbA1c ≤40 mmol/mol and, if measured Fasting plasma glucose ≤6.0 mmol/L.

Retest at the next cardiovascular risk assessment interval.

This result is normal.

19. HbA1c ≥50 mmol/mol

Result

HbA1c ≥50 mmol/mol AND if measured

Fasting plasma glucose ≥7.0 mmol/L

Or

Random plasma glucose ≥11.1 mmol/L

20. Consider other causes for symptoms

Consider other causes for presenting symptoms such as :

- neoplasm
- pancreatitis
- hypercalcaemia
- recent changes in medications including:
  - commencement of steroids
  - antipsychotic medications
  - chemotherapy

21. Differentiate diagnosis

Consider diagnosis

Type 2 diabetes

- If family history of type 2 diabetes
- elevated BMI
- personal history of gestational diabetes mellitus

Type 1 diabetes or Latent Autoimmune Diabetes of Adulthood (LADA)

- family history of type 1 diabetes
- family or personal history of autoimmunity e.g. coeliac disease
- history of weight loss
- presence of urine or blood ketones
- symptoms of polyuria/nocturia and/or polydipsia

Other diagnoses

23. Type 1 Diabetes or Latent Autoimmune Diabetes of Adulthood (LADA)

Type 1 Diabetes is a lifelong (chronic) disease in which there is a high level of sugar (glucose) in the blood.
Latent Autoimmune Diabetes of Adulthood (LADA)

The initial management of Type 1 diabetes and LADA should be started by a diabetes specialist and involve the care of a multidisciplinary diabetes team

Newly diagnosed people with acute symptoms should be urgently referred for outpatient assessment and initiation of insulin same day.

24. Type 2 Diabetes

Type 2 diabetes

25. Other diagnoses

Other diagnoses which require referral include:

- monogenic diabetes
- cystic fibrosis related diabetes
- diabetes due to HIV or antiretrovirals
- syndromic diabetes e.g.
  - myotonic dystrophy
  - friedreich's ataxia
  - inherited lipodystrophy syndromes
- inborn errors of metabolism
- mitochondrial diabetes

Diabetes

Provenance Certificate

Overview | Editorial methodology | References | Contributors | Disclaimers

Overview

This document describes the provenance of MidCentral District Health Board's **Diabetes** pathway. This pathway is regularly updated to include new, quality-assessed evidence, and practice-based knowledge from expert clinicians. Please see the Editorial Methodology section of this document for further information.

This localised pathway was last updated in **October 2017**.

For information on changes in the last update, see the information point entitled 'Updates to this care map' on each page of the pathway.

One feature of the "Better, Sooner, More Convenient" (BSMC) Business Case, accepted by the Ministry of Health in 2010, was the development of 33 collaborative clinical pathways (CCP).

The purpose of implementing the CCP Programme in our DHB is to:

- Help meet the Better Sooner More Convenient Business Case aspirational targets, particularly the following:
    - Reduce presentations to the Emergency Department (ED) by 30%
    - Reduce avoidable hospital admissions to Medical Wards and Assessment Treatment and Rehabilitation for over-65-year-olds by 20%
    - Reduce poly-pharmacy in the over-65-year-olds by 10%
- Implement a tool to assist in planning and development of health services across the district, using evidence-based clinical pathways.
- Provide front line clinicians and other key stakeholders with a rapidly accessible check of best practice;
- Enhance partnership processes between primary and secondary health care services across the DHB.

To cite this pathway, use the following format:

Map of Medicine. Medicine. MidCentral District View. Palmerston North: Map of Medicine; 2014 (Issue 1).

Editorial methodology

This care map was based on high-quality information and known Best Practice guidelines from New Zealand and around the world including Map of medicine editorial methodology. It has been checked by individuals with front-line clinical experience (see Contributors section of this document).

Map of Medicine pathways are constantly updated in response to new evidence. Continuous evidence searching means that pathways can be updated rapidly in response to any change in the information landscape. Indexed and grey literature is monitored for new evidence, and feedback is collected from users year-round. The information is triaged so that important changes to the information landscape are incorporated into the pathways through the quarterly publication cycle.

References

This care map has been developed according to the Map of Medicine editorial methodology. The content of this care map is based on high-quality guidelines and practice-based knowledge provided by contributors with front-line clinical experience. This localised version of the evidence-based, practice- informed care map has been peer-reviewed by stakeholder groups and the CCP Programme Clinical Lead.

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Contributors

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Disclaimers

Clinical Board Central PHO, MidCentral DHB

It is not the function of the Clinical Board Central PHO, MidCentral DHB to substitute for the role of the clinician, but to support the clinician in enabling access to know-how and knowledge. Users of the Map of Medicine are therefore urged to use their own professional judgement to ensure that the patient receives the best possible care. Whilst reasonable efforts have been made to ensure the accuracy of the information on this online clinical knowledge resource, we cannot guarantee its correctness and completeness. The information on the Map of Medicine is subject to change and we cannot guarantee that it is up-to-date.