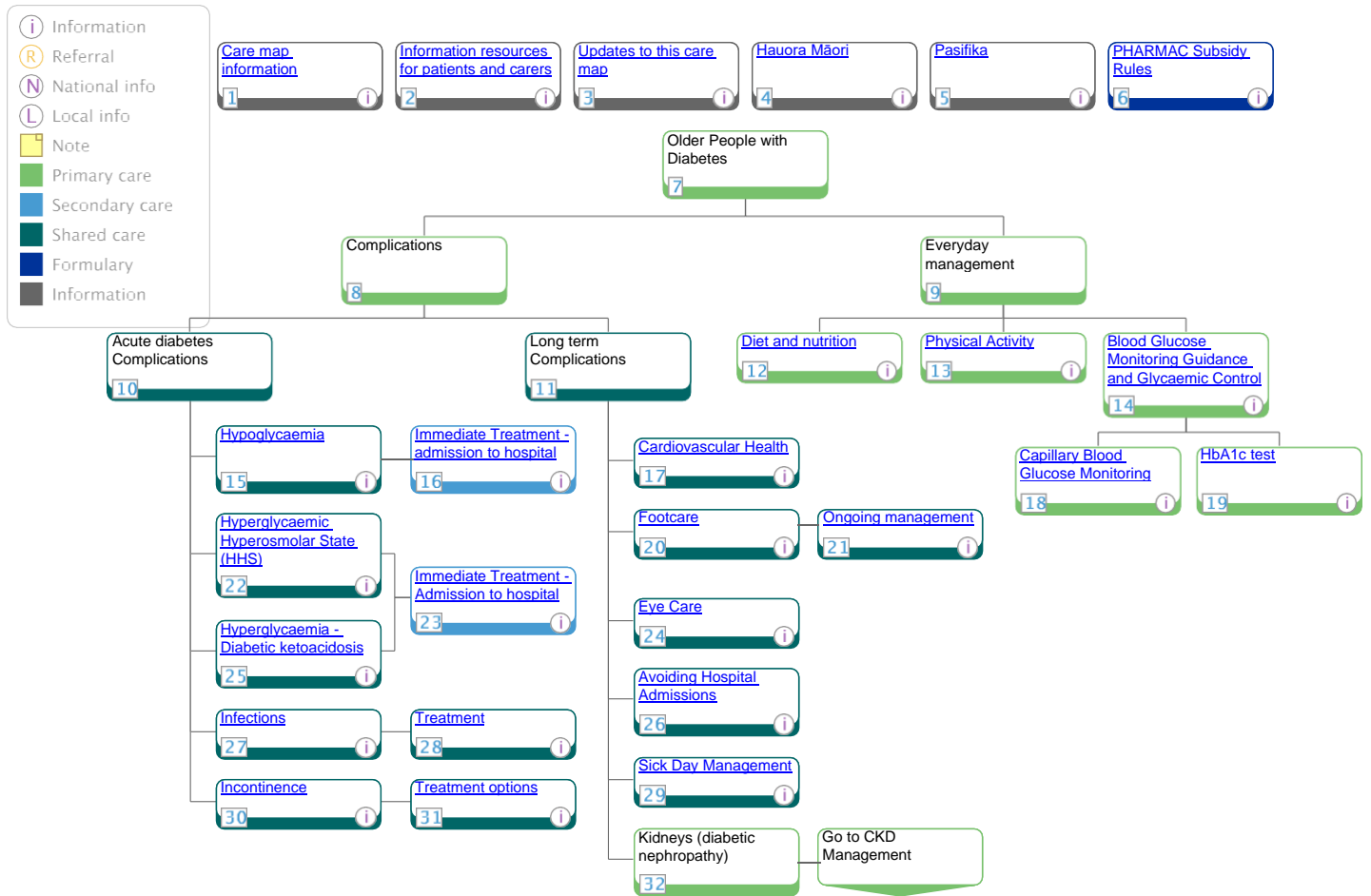


Diabetes – Older People

Medicine > Endocrinology > Diabetes



1. Care map information

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.

2. Information resources for patients and carers

[Manawatu, Horowhenua, Tararua Diabetes Trust - referral forms for local support group events \(adults and youth\)](#)

[Massey Health Conditions Psychology Service](#)

[Diabetes NZ - About Diabetes and Living with Diabetes brochure](#)

[Diabetes NZ - website](#)

[Diabetes NZ - Pre diabetes brochure](#)

[Diabetes NZ - Staying Well with type 2 diabetes booklet](#)

[Manawatu, Horowhenua, Tararua Diabetes Trust education resources](#)

[Diabetes UK website for educational resources](#)

[Heart Foundation \(website\)](#)

[Dietitian NZ website](#)

[Ministry of Health website - Nutrition](#)

[Sport Manawatu](#)

Te Ara Whānau Ora Brochure:

- [Te Ara Whānau Ora Brochure](#)

Patient version of pathway:

- [Patient version of pathway](#)

3. Updates to this care map

Date of draft publication: May 2013.

Interim update:

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.

4. 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 Wha \(Māori model of health\)](#) 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 Maori Health website](#)

5. 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 - Better Health for Pasifika Communities:

- 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
- [Better Health for Pasifika Communities brochure](#)

Additional resources:

- Ala Mo'ui - [Pathways to Pacific Health and Wellbeing 2010-2014](#)
- Primary care for pacific people: [a pacific health systems approach](#)
- Tupu Ola Moui: [The Pacific Health Chart Book 2004](#)
- Pacific Health [resources](#)
- [List of local Maori/Pacific Health Providers](#)
- [Central PHO Pacific Health website](#)

6. PHARMAC Subsidy Rules

According to the Pharmaceutical Schedule and updates, as of 1 April 2012 the following subsidy rules applied: **Insulin Syringes**

- disposable with attached needle
- maximum of 100 per prescription (prescribed on the same prescription as the one used for the supply of insulin or when prescribed for an insulin patient and the prescription is endorsed accordingly)
- sizes: 0.3mL, 0.5mL and 1mL Gauge: 29g and 31g
- needle size: 12.7mm or 8mm
- subsidised brands: ABM, DM Ject, B-D Ultra Fine

Insulin Pen Needles

- maximum of 100 per prescription (prescribed on the same prescription as the one used for the supply of insulin or when prescribed for an insulin patient and the prescription is endorsed accordingly) Gauge: 29g, 31g and 32g
- sizes: 12.7mm (29g), 8mm (31g), 6mm (31g), 5mm (31g), 4mm (32g)
- subsidised brands: ABM, B-D Micro Fine, SC Profi-Fine, Fine Ject (Note: Not all of the above brands are available in multiple sizes or gauge).

Blood Glucose Testing

- maximum of 50 strips per prescription unless:
 - prescribed with insulin or a sulphonylurea on same prescription
 - prescribed on different prescription page from insulin or a sulphonylurea and the prescription is endorsed accordingly
 - prescribed for a pregnant woman with diabetes and prescription is endorsed accordingly

Ketone Testing

- maximum of 20 strips per prescription
- not available on BSO
- subsidised brands: Optimum Blood Ketone Test Strips

Blood Glucose Meters

- maximum of 1 meter per prescription
- subsidised for patients who begin insulin or sulphonylurea therapy after March 2005 (or prescribed to a pregnant woman with diabetes)
- only 1 meter per patient (no further prescriptions will be subsidised)
- the prescription must be endorsed accordingly

12. Diet and nutrition

Older people with diabetes need to enjoy a varied diet with no unwarranted limitations.

Eating a balanced diet together with taking any prescribed medication and monitoring blood glucose as appropriate, will benefit

health.

Older people with diabetes can eat a regular diet according to the recommendations below. ARC menus for all residents should be based on encouraging foods which are high fibre, low saturated fat, moderate sugar and moderate salt.

Weight management is an important part of managing diabetes. Older people in residential care may be more likely to be underweight rather than overweight, and the prevalence of malnutrition and under-nutrition is high.

In ARC facilities menus will be audited by a diabetes specialist dietitian annually who will ensure that it meets the dietary guidelines for this population group, and that a variety of suitable food items are included.

People with Type 1 and Type 2 diabetes may require different dietary management. Please consult a dietitian for individual dietary advice as required [30].

Recommendations:

- ensure meals and snacks are regular
- sugar may be used in the diet up to a maximum of two tablespoons per day. This should be taken as part of a mixed meal, not added to tea, coffee or drinks taken between meals
- encourage a range of healthy cereals to suit the taste preferences of most residents e.g. porridge, muesli, All Bran, Special K and Weet-Bix
- normal jams and honey (up to one teaspoon) can be offered at breakfast, lunch or dinner with wholemeal, fruit bread or toast
- encourage between-meal snacks which contain bran, oats or fruit as appropriate. Sandwiches made with wholemeal/wholegrain bread, fruit, plain cakes, muffins and scones are all suitable. Discourage icing on cakes.
- cream with dessert may be offered if requested, but only a small amount i.e. a garnish. Yoghurt or custard is a better option
- offer stewed or tinned fruit in natural or lite juice
- normal desserts, including ice-cream may be offered. Most desserts are suitable. For any extra sweet dessert e.g. pavlova and jelly, give only a half portion and serve with fruit, custard or yoghurt as appropriate
- use artificial sweetener in beverages and sugar free fruit drinks or cordials between meals
- natural fruit juice may be offered as part of a meal
- encourage plenty of fruit and vegetables [30].

13. Physical Activity

Older people should be encouraged to do the prescribed exercises three times each week.

Assess for risk of hypoglycaemia and lower limb abrasion.

Many improved health and well-being outcomes have been shown to occur with regular physical activity. Most physical activity can be adjusted to accommodate older people with a range of abilities and health problems, including those living in residential care facilities. Older people can improve their:

- balance
- muscle strength
- general fitness
- general well-being

These exercises can be divided up so exercises do not all have to be done at the same time.

Between each set of exercises older people should take three deep breaths or more. They may feel a little stiff when they first start to exercise which is quite normal [30].

14. Blood Glucose Monitoring Guidance and Glycaemic Control

As a general principle, less tight glycaemic control is aimed for in older people. Consider stopping statins in people over the age of 80 years.

15. Hypoglycaemia

Generally, hypoglycaemia occurs when the blood glucose level is less than 4 mmol/L. **“Four is the floor”** Hypoglycaemia can happen in patients treated with insulin and sulphonylureas (gliclazide, glipizide).

The experience of an episode of hypoglycaemia can range from it being unrecognised by the person to extreme discomfort whereby it can be frightening for the person and also their family, friends and carers.

Severe hypoglycaemia:

- is associated with increased mortality, especially in the elderly.
- **be aware!** Symptoms can vary from person to person. Symptoms of hypoglycaemia are called ‘warnings’ as the feelings can be evident before the blood glucose drops very low. However, in older people chronic hypoglycaemia can occur if blood glucose levels repeatedly drop to less than 6 mmol/L

Repeated and/or chronic hypoglycaemia:

- leads to loss of ‘warnings’ and patients are at increased risk from hypoglycaemia.
- if this is recognised, then the person may be able to treat the low blood glucose before it gets any lower
- arrange review of experiencing recurrent hypoglycaemia

Some people may not get any symptoms at all, particularly if they have regular low blood glucose levels. Older people may also have ‘dampened down’ hypoglycaemia warnings or none at all.

For older people there are added risk factors which can lead to hypoglycaemia:

- advanced age
- other illnesses or conditions as well as diabetes
- being prescribed five or more medications
- chronic renal problems
- poor nutrition
- acute illness

What can cause hypoglycaemia?

- too much insulin or too much diabetes medication
- delayed or missed meal
- not enough food containing carbohydrates
- unusual activities
- acute illness (especially infections and diarrhoea)
- sometimes there is no obvious cause

Warning signs:

- new onset confusion, irritability, anxiety or change in behaviour
- new weakness, trembling hands or shaking knees
- feeling suddenly dizzy and lightheaded or new headache
- fast pulse and palpitations (thumping heart)
- pins and needles (tingling) of lips and tongue or feeling hungry
- pale and sweaty skin (late sign!)

- loss of consciousness [30]

Avoidance of hypoglycaemia:

- be aware
- set appropriate and realistic blood glucose targets in the older adult (6 - 10 mmols/L)
- monitor blood glucose in accordance with the person's care plan
- increase monitoring frequency during any intercurrent illness
- learn and remember the warning signs
- test blood glucose if in doubt or if you suspect hypoglycaemia [30]

16. Immediate Treatment – admission to Hospital

In the conscious patient: Give either:

- half a cup of lemonade or
- glucose tablets (10-15 grams) or
- three heaped teaspoons of sugar dissolved in water [30]

Retest in 10 minutes:

- if ≤ 4 mmol/L, give further dose of lemonade, glucose or sugar
- **NOTIFY GP** if capillary blood glucose level is not above 4 mmol/L within 30 minutes but continue with hypo treatment.
- if >4 mmol/L, give either:
 - slice of bread, small pottle of yoghurt and two plain biscuits or
 - 1 glass of milk or
 - meal if due within 15 minutes
- reminder: Hypoglycemia less than 4 mmol/L may be asymptomatic but still requires treatment [30].

If the patient is unconscious: Call the ambulance.

- intravenous administration of 75-80mL 20% glucose or 150-160mL of 10% glucose (the volume will be determined by the clinical scenario). Once the patient regains consciousness, oral glucose should be administered, as above
- if intravenous (IV) access cannot be rapidly established and the hypoglycaemia is induced by insulin, Glucagon 1mg should be given by intramuscular (IM), or subcutaneous (SC) injection. NB: 1 unit of glucagon = 1 mg of glucagon [30]

17. Cardiovascular Health

Individual targets for blood pressure control and lipids depending on comorbidities.

18. Capillary Blood Glucose Monitoring

The frequency of routine capillary blood glucose monitoring for each older person with diabetes should be set out in the Diabetes Annual Review and Plan.

Capillary glucose between 6-13 mmols/l is a reasonable target in most older people [13].

Recommendations:

- Diet Metformin & Pioglitazone - routine assessment of blood glucose is *NOT recommended*
- Monitor glucose control using 3 monthly HbA1c
- When HbA1c levels continue outside the individuals target, limited blood glucose monitoring may be a useful component of treatment review

- Sulphonylureas - routine assessment of blood glucose levels carried out before breakfast and before bed, on *ONE day per week* (this does not need to be the same day of the week)
- Insulin (Basal only) - routine assessment of blood glucose levels carried out on *TWO consecutive mornings per week*
- Insulin (Fixed Dose) - routine assessment of blood glucose carried out before each meal on *TWO days a week*
- Insulin (Basal/Bolus) - routine assessment of blood glucose levels carried out before and *TWO* hours after breakfast, lunch and dinner on *ONE day a week*. These people may require more frequent testing

Blood glucose monitoring should always be undertaken if an older person with diabetes has:

- a change in behaviour or cognitive function
- signs/symptoms of hypoglycaemia
- a change of insulin or tablet does (excepting Metformin)
- infection
- pyrexia
- exacerbation of another illness.

The monitoring of blood glucose is an invasive clinical intervention which poses risks. Tests are done for useful information. *If the information is not useful, or not used, the test should NOT be done [30].*

19. HbA1c test

The HbA1c test (also called glycosylated haemoglobin level) is a laboratory blood test which measures a person's average blood glucose over the previous weeks and gives an indication of his/her longer-term blood glucose control. Measurement of HbA1c remains the most useful tool for monitoring glycaemic control.

New Zealand laboratories will be reporting HbA1c values in the International Federation of Clinical Chemistry and Laboratory Medicine format, which is in mmol/mol. HbA1c levels have previously been measured as a percentage (%).

[Click here to view conversion table](#)

- a proposed HbA1c range for older people is between 60- 70mmol/mol for those at risk of hypoglycaemia
- between 65-86mmol/mol indicates the blood glucose levels are too high
- above 87mmol/mol or higher indicates the blood glucose levels are extremely high
- if the person is on insulin and/or taking a sulphonylurea agent (e.g. gliclazide) and his/her HbA1c level is less than 48mmol/mol this almost certainly indicates that he/she is experiencing multiple episodes of hypoglycaemia. Having HbA1c levels this low is not safe for a person on insulin and/or taking a sulphonylurea [30]

It is helpful if each person with diabetes has a documented target HbA1c range outlined in his/her Diabetes Annual Review and Plan. All HbA1c results should be copied through to the ARC facility (if applicable) so that the Registered Nurse (RN) or clinical lead can monitor results and ensure the resident's HbA1c sits within this ideal range.

If a person's HbA1c results sit outside the target HbA1c range, a documented discussion should occur so that strategies can be implemented to achieve an HbA1c within the target range, in order to minimise complications. These discussions should include the older person in question along with their GP and if applicable:

- ARC RN or clinical lead
- family/whānau [30]

20. Footcare

Diabetes can cause poor circulation and reduced feeling in the feet. In older people reduced mobility and failing eyesight can lead to a reduction in the level of foot inspection (this may mean that damage has become more serious before anyone is aware of it).

Damage can be prevented, but care is needed by the person with diabetes, their carers and health care teams. Care home residents may not be able to self-inspect their feet. Individualised foot care guidance will be documented in the care plan.

21. Ongoing management

Follow the steps below to prevent or detect foot problems:

- check feet daily, including in between toes and look for thickened hard skin, changes in colour and breaks in the skin
- wash feet (minimum alternate days) in warm water and with a mild soap. Check the water temperature as the person with diabetes may not be able to feel hot or cold temperatures. Dry feet carefully, especially between the toes
- if the skin is dry, apply an emollient or moisturising cream but avoid the areas between the toes
- do not use over the counter products to treat corns and calluses
- avoid using hot water bottles (reduced sensation) - bed socks are better
- make sure that socks and shoes are not too tight
- ensure the resident has shoes which are comfortable and broad fitting, checking inside for stones, sharp objects or ruffled lining
- avoid socks or stockings with wrinkles, prominent seams or darned areas
- arrange an appointment with the podiatrist if you become aware of problems

Act immediately if you spot the following danger signs:

- swelling
- changes in colour of the skin
- sores or cuts that do not heal
- skin that feels hot to touch
- difficulty in moving the foot

These could indicate poor circulation, an infection, the early stages of an ulcer or gangrene [30].

Refer to podiatrist for high risk foot/lower limb injury or ulcers.

22. Hyperglycaemic Hyperosmola State (HHS)

Hyperglycaemic Hyperosmolar State (HHS) is a potentially life-threatening emergency.

Hyperglycaemic Hyperosmolar State (HHS):

- occurs in people with Type 2 diabetes who may be experiencing very high blood glucose levels (often over 40mmol/L).
- is a serious and often fatal consequence of hyperglycaemia and dehydration
- mortality rate increases with age and osmolarity (marker of dehydration)
- can develop gradually (over a course of weeks) through a combination of:
 - illness
 - dehydration
 - inability to take normal diabetes medication due to the effect of illness

Symptoms can include:

- frequent urination and great thirst
- nausea
- dry skin and mucous membranes (mouth, lips, tongue)
- disorientation
- in later stages, drowsiness and a gradual loss of consciousness

Hospital treatment for HHS involves replacing the lost fluid caused by high glucose levels and the administration of insulin through a vein, to bring the blood glucose down to an acceptable level.

HSS does not usually lead to the presence of ketones in the urine, as occurs in ketoacidosis. **HSS mortality figures range from 10%-63% (can lead to stroke, myocardial infarction, renal dysfunction and neurological complications).** Up to 50% of patients with HSS may not have been diagnosed with diabetes (hence diabetes screening at admission to care). HSS is ten times more common than DKA; it affects mainly elderly people with poor fluid and nutritional input [30].

Symptoms of hyperglycaemia in elderly people may include:

- reduced sensation of thirst
- unable to feed themselves (depend on carers to give fluid regularly)
- increased renal glucose threshold - change in glucose handling of the kidney
- symptoms of polydipsia (frequent passing of large amounts of urine) may be masked by other illnesses such as urinary incontinence

Common symptoms of hyperglycaemia (lethargy, confusion, restlessness, blurred vision, infections and impaired cognition) may be considered symptoms of old age [30].

Prevention and early recognition are paramount:

- ensure regular fluid intake in the elderly (provide access to fluid)
- encourage fluid intake especially in diabetic patients
- check tongue (mucous membranes) for dryness
- watch for signs and symptoms of infections (see above)
- watch for any significant change in behaviour and cognition in the elderly diabetic patient (and report to nurse)
- beware of signs of hyperglycaemia such as lethargy, confusion, restlessness, blurred vision, infections and impaired cognition
- watch for new incontinence and or polyuria
- if in doubt, check blood glucose [30].

If suspected, urgent referral and/or urgent admission to hospital is required.

23. Immediate Treatment – Admission to Hospital

Test Capillary Blood Glucose Levels:

- **less than 6 mmol/L** - notify GP for review of diabetes medications
- **6 -15 mmol/L** - this range is acceptable. if the patient has hypoglycaemia (more than twice a month) notify the GP for review of diabetes medications
- **greater than 15 mmol/L** - Carry out ketone urine test. Notify GP to review diabetes medication
- **greater than 25 mmol/L** - Notify GP for active treatment guidance

24. Eye Care

Age-related changes in the eyes mean that residents are likely to want more light for reading and may need glasses. Age is the most significant risk factor for developing common eye conditions such as glaucoma, age-related macular degeneration (AMD) and cataracts, which can lead to blindness.

Vision is assessed at least bi-annually as part of the Diabetes Annual Review, and for most, an examination of the retina by photographic screening or specialist examination is done every two years.

Good vision can also prevent falls [30].

25. Hyperglycaemia – Diabetic ketoacidosis

This includes potential or actual loss of glycaemic control.

If this impacts on a person's diabetes, go to [special instances for sick day management](#).

Diagnose and treat underlying illness.

Detecting ketones Ketones are easily detected by a simple urine dipstick test. The urine of people with diabetes should be tested for ketones if their blood glucose is high (usually over 15mmol/L) or if they have any symptoms of ketoacidosis. If high levels of ketones in the urine are discovered (the test strips will tell you if levels are high), and especially if their blood glucose levels are high, medical advice should be sought immediately [30].

If suspected, urgent referral and/or urgent admission to hospital is required.

26. Avoiding Hospital Admissions

Good diabetes care and awareness of problems which may become more serious will help to prevent unnecessary admission to hospital:

- if the person with diabetes is unwell, their blood glucose level is likely to be higher - even if they are not eating
- if the person is able to eat, but has no appetite:
 - offer small meals and often
 - try replacing meals with small snacks such as jelly and ice cream, custard or soup
- if the resident really can't manage to eat anything:
 - try to ensure they drink plenty of fluid
 - offer carbohydrate containing drinks such as milk, milky drinks or sugary drinks such as lemonade regularly at two hours intervals
- if blood glucose is less than 8mmol/L refer to Hypoglycaemia information node
- if blood glucose is higher than 4mmol/L, give water, soda water or mineral water [30]

27. Infections

People with diabetes are more prone to infections, especially if the blood glucose levels are at a higher than normal or ideal level. Nearly all infections will cause blood glucose levels to rise.

Infections in older people, if not dealt with promptly, can lead to serious complications which may necessitate admission to hospital.

Signs and symptoms of infection include:

- temperature (> 37.0 C)
- fatigue and chills
- headache generalised aches
- cough sputum production
- nausea, vomiting or diarrhoea
- cloudy or foul smelling urine, frequency or burning on passing urine
- swelling, redness, tenderness, rash
- foul smelling and/or discharging skin wound
- sore mouth, white patches in the mouth

However, in the elderly signs and symptoms may not be obvious! A change in mobility or the onset of a confused state may indicate infection [30].

28. Treatment

- urgent referral to the GP is necessary for the treatment of the infection

- make sure the person does not become dehydrated by giving regular fluids
- if someone has diarrhoea, carers should be aware that they may be more prone to hypoglycaemia
- keep testing their blood glucose to monitor improvement or deterioration

IMPORTANT! Do not stop diabetes treatment. The dose of diabetes medication may need to be increased for the duration of infection. **EXCEPTION:** Do not give Metformin if patient is vomiting or has diarrhoea.

29. Sick Day Management

Illness such as colds, flu, infections, vomiting or diarrhoea may create special problems for people with diabetes, as illness tends to worsen diabetes control.

When sick, fluids are lost from the body and must be replaced:

- give at least one glass of fluid every hour, especially if there is diarrhoea or vomiting
- if blood glucose is **less than 8 mmol/L**, give fruit juice or flat fizzy drinks
- if blood glucose is **higher than 8 mmol/L**, give water, soda water or mineral water
- if the person has a sore mouth or cannot chew, offer custard, fruit yoghurt, Milo, ice cream or jelly
- if the person has diarrhoea, avoid dairy products. Give Oxo cubes or beef stock, chicken cubes or stock, or vegemite/marmite as a drink, soup with dry toast or bread
- **special care is required to prevent more serious problems developing [30]**
- test blood glucose 4 times a day - if the test is continually higher than 15 mmol/L check for ketones then contact the GP
- continue to give usual diabetes tablets/insulin **EXCEPTION: Do not give metformin if patient is vomiting or has diarrhoea** - the blood glucose may rise during illness, so diabetes medicines are needed
- ensure plenty of fluids taken - dehydration can develop quickly. Give one glass of fluid every hour
- find the cause of the illness - Contact the GP if necessary

Contact the GP if the person has any of the following:

- vomiting or diarrhoea persisting more than 12 hours
- persistent blood glucose levels greater than 15 mmols/L
- Infection or fever [30].

Consider urgent consultation or referral to Diabetes and Endocrinology Service for assessment and management plan.

30. Incontinence

Causes can include:

- hyperglycaemia (high blood glucose levels) can cause thirst and increase urination
- urinary tract infections
- physical changes in bladder muscles (e.g. after menopause)
- enlarged prostate gland
- damage to the nerves caused by conditions such as diabetic neuropathy [30]

Different types of incontinence

- stress incontinence - urine loss occurs when coughing, laughing or during exercise
- urge incontinence - sudden need to pass urine
- overactive bladder - the nerves send the wrong signals to the bladder causing urgency, frequency and incontinence
- functional incontinence - difficulties in managing toilet needs associated with other physical or mental illnesses [30]

31. Treatment options

Different treatments and interventions are available, depending on the type of incontinence and can range from pelvic floor exercises to medication.

Weight loss (if appropriate) and improved diabetes control can help.

The person's GP should be made aware of problems with incontinence and what measures have been taken to resolve the problem [30].

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.

American Diabetes Association Position Statement: Standards of Medical Care in Diabetes – 2017. Diabetes Care, 40 (suppl. 1), S1-S138.
British Cardiac Society, British Hypertension Society, Diabetes UK et al. JBS 2: Joint British Societies' guidelines on prevention of cardiovascular disease in clinical practice. Heart 2005; 91 (Suppl 5): V1-V52.
Contributors representing the Diabetes Collaborative Clinical Pathway Working Group – MidCentral DHB (2013)
Diabetes UK. Evidence-based nutrition guidelines for the prevention and management of diabetes. London: Diabetes UK; 2011.
Drury, P.& Gattling, W. (2005) Diabetes: Your questions answered. Churchill Livingstone UK
Franz, M.J., MacLeod, J., Evert, A. et al. Academy of Nutrition and Dietetics Nutrition Practice Guideline for Type 1 and Type 2 Diabetes in Adults: Systematic Review of Evidence for Medical Nutrition Therapy Effectiveness and Recommendations for Integration into the Nutrition Care Process. J Acad Nutr Diet. 2017. In press. http://dx.doi.org/10.1016/j.jand.2017.03.022
Hawkes Bay DHB (2012) Diabetes care for Aged residential Care Facilities in Hawkes Bay. Hawkes Bay: New Zealand
Institute for Clinical Systems Improvement (ICSI). Management of type 2 diabetes mellitus in adults. Bloomington, MN: ICSI; 2010.
Kidney Health New Zealand (2010) Chronic Kidney Disease (CKD) Management in General Practice Summary Guide.
MacLeod, J., Franz, M.J., Handu, D., Gradwell, E., Brown, C., Evert, A., Reppert, A., Robinson, M. Academy of Nutrition and Dietetics Nutrition Practice Guideline for Type 1 and Type 2 Diabetes in Adults: Nutrition Intervention Evidence Reviews and Recommendations. J Acad of Nutr Diet. 2017. In press. http://dx.doi.org/10.1016/j.jand.2017.03.023
MidCentral DHB (2010). Diabetes Care Pathway – Type 1 Diabetes > 18 Years Adapted from Structured Care (3) Diabetes U.K. August 2004.
MidCentral DHB (2010). Diabetes Care Pathway – Type 2 Diabetes Adapted from Structured Care (3) Diabetes U.K. August 2004.
MidCentral DHB (2012) Primary care management of increased creatinine, management of slowly progressing renal Impairment Palmerston North: MidCentral DHB
Ministry of Health. (2013) Food and Nutrition Guidelines for Healthy Older People: A Background Paper. Wellington: Ministry of Health. http://www.health.govt.nz/publication/food-and-nutrition-guidelines-healthy-older-people-background-paper
Ministry of Health. (2014) Quality Standards for Diabetes Care Toolkit. Wellington: Ministry of Health. http://www.health.govt.nz/publication/quality-standards-diabetes-care-toolkit-2014
Ministry of Health. (2015) Eating and Activity Guidelines for New Zealand Adults. Wellington: Ministry of Health. http://www.health.govt.nz/publication/eating-and-activity-guidelines-new-zealand-adults
National Institute for Health and Clinical Evidence (NICE). Early identification and management of chronic kidney disease in adults in primary and secondary care. Clinical guideline 73. London: NICE; 2008
National Institute for Health and Clinical Excellence (NICE) (2011). Preventing type 2 diabetes: population and community-level interventions in high-risk groups and the general population. Public health guidance 35. London: NICE; 2011.
National Institute for Health and Clinical Excellence (NICE) (Aug 2015). Type 1 diabetes in adults: diagnosis and management. NICE Guideline NG17. (Last updated 2016). London: NICE; 2015.

National Institute for Health and Clinical Excellence (NICE) (Aug 2015). Diabetes (type 1 and type 2) in children and young people: diagnosis and management. NICE Guideline NG18. (Last updated Nov 2016). London: NICE; 2015.
National Institute for Health and Clinical Excellence (NICE) (Aug 2015). Diabetic foot problems: prevention and management. NICE Guideline NG19. (Last updated Jan 2016). London: NICE; 2015.
National Institute for Health and Clinical Excellence (NICE). Behaviour Change: General Approaches. Public Health Guideline PH6. London: NICE, 2007.
National Institute for Health and Clinical Excellence (NICE). Type 2 Diabetes: Prevention in People at High Risk. Public Health Guidelines PH38. London: NICE, 2012.
National Institute for Health and Clinical Excellence (NICE). Type 2 Diabetes in Adults: Management. Clinical Guideline NG28. London: NICE, 2015.
New Zealand Guidelines Group (2012) New Zealand Primary Care Handbook 3rd Edition. Wellington, New Zealand
New Zealand Society for the Study of Diabetes (NZSSD) (2011). Position Statement on the diagnosis of, and screening for, Type 2 Diabetes Updated: September 2011
NSSD (2012). Guide to medicines used in diabetes MidCentral District Health Board: Palmerston North
NZSSD (2011). Summary - screening for type 2 diabetes Available at: http://www.nzssd.org.nz/HbA1c/2.%20NZSSD%20exec%20summary%20diagnosis%20of%20diabetes%20Sept%202011%20final.pdf
PRODIGY. Diabetes Type 2. Version 2.19. Newcastle upon Tyne: PRODIGY; 2011.

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Disclaimers

Clinical Board Central PHO, MidCentral DHB

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