1 Care map information

Quick info:
Scope:
• screening for type 2 diabetes in primary health care
• diagnosis of type 2 diabetes in primary health care
• diagnosis of impaired glucose tolerance (IGT) and impaired fasting glucose (IGF)
• management of impaired glucose tolerance (IGT) and impaired fasting glucose (IGF)
• non insulin management of type 2 diabetes in primary health care
• screening for complications of type 2 diabetes in primary health care
• management of complications of type 2 diabetes in primary health care
• referral criteria to secondary care for type 2 diabetes
• insulin management of type 2 diabetes
Out of scope:
• management of gestational diabetes
• diagnosis and management in children

Updates to this pathway
This care map has been drafted using the Map of Medicine editorial methodology (URL) and represents best clinical practice according to the highest quality evidence available, including the following guidelines:
• Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes

2 Resources for patients, families and carers

Quick info:
Information for patients from Diabetes Australia Vic
Healthy Eating
Physical activity
Blood glucose monitoring

National Diabetes Services Scheme (NDSS)
Diabetes Australia administers the National Diabetes Services Scheme in conjunction with state and territory diabetes organisations as Agents. The NDSS is an Australian Government initiative that provides subsidies on diabetes self-management products and support services. Through the NDSS, people with diabetes can receive telephone support through the National Infoline 1300 136 588, along with a range of diabetes information and education resources targeted for type 1 diabetes, type 2 diabetes and gestational diabetes.

3 Aboriginal and Torres Strait Islander patient information

Quick info:
Aboriginal Australians are 3-4 times more likely to develop type 2 diabetes than the general population. Type 2 diabetes represents a serious health problem for Indigenous people, who tend to develop it at an earlier age compared with other Australians, and can have an excess of avoidable complications.

Aboriginal and Torres Strait Islander resources from Diabetes Australia Vic

4 Diabetes complications

Quick info:
Diabetic complications
Diabetes complications

- cardiovascular disease (CVD)
- renal disease
- diabetic retinopathy
- diabetic foot disease
- other neuropathic complications

Regular monitoring and prompt treatment of problems reduces morbidity and mortality:
- ensure people with diabetes receive an annual assessment for the risk and presence of the complications of diabetes
- prevent microvascular complications through:
  - biannual eye exams
  - foot risk assessment and foot care counseling
  - annual screening for proteinuria

References
1. Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes

5 Cardiovascular disease prevention

Quick info:
Cardiovascular disease (CVD) prevention:
- for patients with impaired glucose regulation, aim to prevent progression of diabetes and CVD [1]
- progressive narrowing and hardening of the coronary, cerebral, or peripheral arteries (atherosclerosis) leads to clinical events, such as [2]:
  - acute myocardial infarction (MI)
  - congestive cardiac failure
  - sudden cardiac death
  - stroke
- regular (usually at least annually) assessment and interventions reduce risk of developing CVD [1]:
  - measure the full blood lipid profile when assessing cardiovascular risk at diagnosis and at least annually thereafter

References

6 Renal disease in patients with diabetes

Quick info:
Renal disease in patients with diabetes:
- kidney damage and impairment of kidney function is due to long standing effects of diabetes on glomerulus [1]
- severe diabetic nephropathy may result in kidney failure and end-stage renal disease [1]
- assess for kidney damage at diagnosis and annually thereafter
- primary prevention of kidney damage from diabetes [2]:
  - prevention of microvascular damage – diabetic nephropathy
  - prevention of arterial damage – renovascular
- microalbuminuria is the earliest indicator of renal disease due to diabetes
- raised urine albumin levels and/or raised serum creatinine in diabetes increases risk of premature cardiovascular events [2]
Diabetes - complications
A-Z Frankston-Mornington Peninsula local pathways > Diabetes > Diabetes

- regular (usually at least an annual) monitoring of renal function, prompt management of renal disease, including strict attention to blood pressure (BP) control and strict glycaemic control may reduce risk of serious complications [1]

References

7 Diabetic retinopathy

Quick info:
RACGP diabetic retinopathy screening recommendations [1]
Ensure that all people with diabetes have a dilated fundus examination and visual acuity assessment at the diagnosis of diabetes and at least every 2 years [1].

Examine higher risk patients (longer duration of diabetes, poor glycaemic control, BP or blood lipid control) without diabetic retinopathy at least annually [1].

Conduct annual screening for Aboriginal or Torres Strait Islander peoples with diabetes [1]

Diabetic retinopathy

- small blood vessels in the body may become damaged in people with diabetes [2]
- damage to blood vessels in the retina may lead to bleeding or scarring in the retina centre (macula):
  - causing impaired vision [2]
  - in severe cases, diabetic retinopathy can cause blindness [3]
- emergency review by ophthalmologist is required for [4]:
  - sudden loss of vision
  - rubeosis iridis
  - pre-retinal or vitreous haemorrhage
  - retinal detachment

References
1. Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes

8 Diabetic foot disease

Quick info:
All people with diabetes should have an annual foot health assessment

RACGP recommendations [1]
Assess all people with diabetes and stratify their risk of developing foot complications
People assessed as having intermediate- or high-risk feet should be offered a foot protection program. A foot protection program includes foot care education, podiatry review and appropriate footwear.
Pressure reduction, otherwise referred to as redistribution of pressure or offloading, is required to optimise the healing of plantar foot ulcers.
Offloading of the wound can be achieved with the use of a total contact cast or other device rendered irremovable. People with diabetes-related foot ulceration are best managed by a multidisciplinary foot care team.

Diabetic foot disease [2]:
- foot problems are generally caused by peripheral vascular disease (progressive occlusion to arteries supplying extremities) or neuropathy (nerve damage)
- problems include:
  - poor circulation
  - pain
  - development of foot ulcers
  - loss of sensation

References
1. Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes

9 Neuropathy

Quick info:

Autonomic neuropathy may result in [1]:
- orthostatic hypotension with >20 mmHg drop
- impaired and unpredictable gastric emptying (gastroparesis), which can cause a person's blood glucose levels to be erratic and difficult to control. Pro-kinetic agents such as metoclopramide, domperidone or erythromycin may improve symptoms
- diarrhoea
- delayed/incomplete bladder emptying
- erectile dysfunction and retrograde ejaculation in males
- reduced vaginal lubrication with arousal in women
- loss of cardiac pain, ‘silent’ ischaemia or infarction
- sudden, unexpected cardiorespiratory arrest especially under anaesthetic or treatment with respiratory depressant medications
- difficulty recognising hypoglycaemia
- unexplained ankle oedema.

Diabetic peripheral neuropathy [1]
All patients should be screened for distal symmetric polyneuropathy starting at diagnosis of type 2 diabetes and at least annually thereafter, using simple clinical tests.

Antidepressants, including tricyclics, duloxetine and venlafaxine should be considered for the treatment of patients with painful diabetic peripheral neuropathy.

Anticonvulsants, including pregabalin and gabapentin should be considered for the treatment of patients with painful diabetic peripheral neuropathy.

Charcot neuroarthropathy
Be alert to the possibility of Charcot neuroarthropathy - hot, red, asymmetrically swollen foot

References
1. Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes

11 Calculate CVD risk level

Quick info:
Diabetes - complications
A-Z Frankston-Mornington Peninsula local pathways > Diabetes > Diabetes

Assess cardiovascular risk:
- Australian absolute cardiovascular disease risk calculator
- Australian cardiovascular risk charts
- Medical Director Cardiovascular Risk Calculator, under Tools>Tool Box
- Best Practice Cardiovascular Risk, under Clinical

12 Assessment

Quick info:
RACGP recommendations
Kidney status in people with type 2 diabetes should be assessed by:
- annual screening for albuminuria (note that dipstick urine test is not adequate to identify albuminuria)
- annual estimation of the glomerular filtration rate (eGFR in mL/min/1.73m²)

References
1. Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes

13 REFERRAL Optometrist or ophthalmologist

Quick info:
Optometrists
Frankston Integrated Health Optometry
8 - 10 Hastings Road, Frankston 3199
Ph 9784 8342
Eligibility: The patient must be a permanent resident of Victoria and:
- Hold a Pensioner Concession Care in their own name, or
- Hold a Health Care Card in their own name, or be listed in a Health Care Card as a dependent; or
- Hold a Veterans Affairs (DVA) Gold Card in their own name, or
- Be younger than 18 years of age, or
- Be a full time student, or
- Have a condition that requires equipment or expertise unavailable elsewhere
Description: Eye screening and subsidised glasses from the Australian College of Optometry
Long waiting list

Diabetes ophthalmology clinic
Frankston Hospital
Referral: Phone 9784 7670
Fax 9784 7319
Once a month Friday mornings
No waiting list

Optometrist listings on NHSD

14 Podiatry management options

Quick info:
Low risk - No risk factors for foot ulceration or ulceration/amputation.
Offer basic foot care information and annual foot assessment
Intermediate risk - One risk factor only (i.e. neuropathy, PAD) and no previous history of foot ulceration or amputation.
Offer program that includes foot care education, podiatry review every 6 months and footwear assessment.

**High risk** - Two or more risk factors (i.e. neuropathy, PAD or foot deformity) and/or previous foot ulceration or amputation or Aboriginal or Torres Strait Islander peoples with diabetes.

Offer program that includes foot care education, podiatry review and footwear assessment.

### References
1. Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes

## 15 Management

### Quick info:
The appearance of peripheral neuropathy should prompt review and consideration of improved glycaemic control [1]. The pain of peripheral neuropathy can be difficult to manage, although there is evidence that several agents can improve symptom control and quality of life. Tricyclic medications should be used as a first-line treatment, although side effects are not uncommon [1]. Gabapentin provides pain relief of a high level in approximately one-third of people who take this medication for painful neuropathic pain. Side effects are common (66%) [1]. Pregabalin at daily oral doses of 300–600 mg provides high levels of benefit for a minority of patients experiencing neuropathic pain including painful diabetic neuropathy [1]. Motor neuropathy sometimes occurs with muscle wasting, weakness and abnormalities of gait. This can contribute to foot problems by altering the biomechanics of the ankle and foot [1].

### References
1. Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes

## 16 Dental

### Quick info:
Dental problems such as periodontitis (i.e. localised inflammation of the supporting structures of the teeth due to a chronic bacterial infection) are more common in patients with diabetes [1]. Periodontitis can result in tooth loss and other dental complications that can interfere with the diet. Additionally there is a two-way relationship between diabetes and periodontitis – the management of periodontitis may lead to a modest reduction in HbA1c of approximately 0.4% . Inversely, improving glycaemic control may also improve the severity and complications associated with periodontitis. Oral and periodontal health reviews should be incorporated into the systematic individualised care of patients with diabetes. Early prevention and intervention may prevent permanent dental loss and help aid in glycaemic control.

### References
1. Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes

## 17 Targets

### Quick info:
BP [1]:
≤140/90 mmHg in general or people with CKD
≤130/80 mmHg in all people with diabetes
≤130/80 mmHg if microalbuminuria or macroalbuminuria (UACR >2.5 mg/mmol in men and >3.5 mg/mmol in women)

Lipids:
TC <4.0 mmol/L
HDL-C ≥1.0 mmol/L
LDL-C <2.0 mmol/L
Non-HDL-C <2.5 mmol/L; TG <2.0 mmol/L
Diabetes - complications
A-Z Frankston-Mornington Peninsula local pathways > Diabetes > Diabetes

Lifestyle:
• Smoking cessation
• Consume diet rich in vegetables and fruit, low in salt and saturated and trans fats
• At least 30 min physical activity on most or preferably every day of the week

Limit alcohol intake

References
1. Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes

18 Management

Quick info:
RACGP recommendations:
Reducing the risk or slowing the progression of nephropathy can be achieved by:
• optimising glucose control aiming for a general HbA1c target of 7% (53mmol/mol)
• optimising BP control

In people with type 2 diabetes and microalbuminuria or macroalbuminuria, ARB or ACEI antihypertensive should be used to protect against progression of kidney disease.

People with type 2 diabetes should be informed that smoking increases the risk of CKD.

People with diabetes and microalbuminuria are considered at high cardiovascular risk, and should be treated with multifactorial interventions.

References
Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes

19 REFERRAL Podiatrist

Quick info:
Community Health podiatry (Rosebud, Mornington, Frankston, Hastings)
Referral: GP or self-referral
Ph 1300 665 781 or Fax (03) 9787 9954

High priority clients include people with:
• an area on their foot that is swollen, discoloured or discharging
• a wound that is not healing
• a foot problem such as an ulcer or an infection that has required hospital admission within the last three months
• a history of foot ulcers or lower limb amputation
• a chronic and complex medical condition

Cost: $9
Low risk people can be seen annually
Estimated wait: Community Health Waiting List

Private podiatry
Eligible for MBS chronic disease management items for allied health
Preferably with training or interest in diabetic foot disease
Usually copayment of $8 to $25
20  Mental health

Quick info:
Mental health issues such as diabetes-related distress, depression and anxiety are common. Rates of depression are increased by 15% in people with diabetes compared with people without diabetes [1]. Mental health issues can adversely affect patient–practitioner communication, adherence to diabetes management plans and glycaemic control, as well as adding to the burden of disease and reducing quality of life [1]. Depression and diabetes are associated with a significantly increased all-cause and CVD-related mortality [1]. Some antipsychotic medications can increase the risk of developing diabetes. Olanzapine and clozapine are associated with higher rates of diabetes compared with other antipsychotic agents [1].

Psychologist listings on National Health Service Directory (Frankston, Mornington, Rosebud, Hastings)

References
1. Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes

21  Monitoring

Quick info:
Review response 6–12 weekly until sufficient improvement or maximum tolerated dose achieved.
Adjust medication as required.
Review of absolute risk according to clinical context.

References
1. Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes

22  Referral criteria

Quick info:
Referral criteria for either endocrinologist or nephrologist may include [1]:
- eGFR <30 mL/min/1.73m2
- persistent significant albuminuria (UACR ≥ 30 mg/mmol)
- consistent decline in eGFR from a baseline of <60 mL/min/1.73m2 (a decline >5 mL/min/1.73m2 over a 6-month period which is confirmed on at least three separate readings)
- CKD and hypertension that is hard to get to target despite at least three antihypertensive agents.

Nephrologist referral recommended for glomerular haematuria with macroalbuminuria

References
1. Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes

23  REFERRAL High risk foot clinic

Quick info:
High Risk Foot Clinic - Peninsula Health Frankston Integrated Health Service
Fax GP referral to (03) 9784 7053 (requires GP signature)
Description The High Risk Foot Clinic is staffed by a multidisciplinary team that includes an endocrinologist, vascular surgeon, diabetes nurse educator, podiatrist and care coordinator
Eligibility criteria
Diabetes - complications
A-Z Frankston-Mornington Peninsula local pathways > Diabetes > Diabetes

- Non Healing Foot/Ankle Wound (> 4 weeks with no reduction in size or depth)
- Acute Ulceration with severe infection (cellulitis/osteomyelitis)
- Active Charcot Foot
- Acute Lower Limb Peripheral Vascular Disease with foot ulceration

Not eligible
- Diabetes Foot Assessment (no wound)- refer to community health
- General Foot Care
- Previous healed foot ulceration - refer to community health
- Wounds above the ankle

Referral form - High risk foot clinic

24 Obstructive sleep apnoea

Quick info:
Obstructive sleep apnoea or sleep deprivation from any cause can aggravate insulin resistance, hypertension and hyperglycaemia. Sleep apnoea is especially common in adults with diabetes.
The usual approach to obstructive sleep apnoea is diagnosis via a sleep study and management with individualised interventions including continuous positive airway pressure.
Driving licence requirements, particularly in commercial drivers, are particularly relevant.

References
1. Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes

25 REFERRAL Peninsula Health Diabetes Clinic

Quick info:
Peninsula Health Diabetes clinic
Referral: Phone 9784 7670
Fax (03) 9784 7682

Service description: A multidisciplinary clinic for the care and management of persons with type 1 and 2 diabetes.

Eligibility:
Inclusion Criteria:
  • all patients with Type 1 Diabetes
  • patients with Type 2 diabetes who
  • have Co morbidities
  • who are unstable
  • uncontrolled Type 2 diabetes
  • young Type 2 Diabetes (<30 yrs age)

Exclusion Criteria:
  • controlled Type 2 Diabetes
  • gestational Diabetes

Minimum information required:
  • relevant medical history
  • recent pathology
  • contact details

Address: Frankston Integrated Health Centre, Hastings Rd, Frankston

26 REFERRAL Private endocrinologists
Diabetes - complications
A-Z Frankston-Mornington Peninsula local pathways > Diabetes > Diabetes

Quick info:
Patients to refer to endocrinologists:
• all patients with Type 1 Diabetes
• patients with Type 2 diabetes who
  • have co morbidities
  • who are unstable
  • uncontrolled Type 2 diabetes
• young Type 2 Diabetes (<30yrs age)

Private Endocrinologists
Endocrinologist listings on National Health Service Directory

Dr Jonathan Cohen, Dr Kati Matthiesson, Dr Steven Morris, Dr Chin Tan
Hastings Road Specialist Centre
9 Hastings Road, Frankston, 3199
Ph 9783 8466
Fax (030) 9783 8133

Dr Serge Tang-Fui and Dr Mark Tang-Fui
21 Kars St, Frankston
Ph 9866 3476
Fax (03) 9820 4708

The wait for a private endocrinologist is approximately 3 months.

Details of relevant service providers are listed as a service for clinicians. Listing in this pathway is not an endorsement of the provider. If any relevant providers have been missed or if information is incorrect, please use the feedback button on the bottom right of the page to alert us.

27 REFERRAL Nephrologists

Quick info:
Referral criteria for nephrologist may include [1]:
• glomerular haematuria with macroalbuminuria
• eGFR <30 mL/min/1.73m2
• persistent significant albuminuria (UACR ≥30 mg/mmol)
• consistent decline in eGFR from a baseline of <60 mL/min/1.73m2 (a decline >5 mL/min/1.73m2 over a 6-month period which is confirmed on at least three separate readings)
• CKD and hypertension that is hard to get to target despite at least three antihypertensive agents.

Peninsula Health
Frankston Hospital Renal unit
Ph: (03) 9784 7243
Fax: (03) 9784 7289
The Department of Nephrology provides inpatient care, acute dialysis and consultation for all patients admitted to Frankston Hospital with kidney problems.
In addition, the department provides a range of outpatient clinics for chronic kidney disease, haemodialysis, peritoneal dialysis and transplant patients.

Private nephrologists
Nephrologist listings from National Health Service Directory
Peninsula Renal Services
17 Hastings Rd, Frankston
Phone: 9769 6307
Fax: (03) 9769 6303
Consultants:
  • Dr Robert Flanc
  • Dr Vinod Venkataraman

Peninsula Specialists Clinic
118 Williams St, Frankston
Mob 0439 228 338
Ph 9783 2009, Fax 9783 8758
  • Dr Kim Wong

Peninsula Private Hospital Consulting Suites
525 McClelland Dve
Ph 9770 9772 Fax 9770 9774
  • Dr Alinda Chiu

Details of relevant service providers are listed as a service for clinicians. Listing in this pathway is not an endorsement of the provider. If any relevant providers have been missed or if information is incorrect, please use the feedback button on the bottom right of the page to alert us.

References
1. Royal Australian College of General Practitioners (RACGP): General practice management of type 2 diabetes
Provenance certificate

Contents

- Overview
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- Contributors
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Overview

This document describes the provenance of the Diabetes pathway.

This pathway was last updated on December 19, 2014.

The Peninsula Pathways Program aims to improve the continuity of patient care between primary, community and hospital care settings in the Frankston-Mornington Peninsula region. Work groups comprising of experienced health professionals (GPs, specialists, nurses, allied health professionals) were established to review and localise pathways.

This pathway has been developed to improve outcomes for patients, family members and carers of people with diabetes.

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To cite this pathway, use the following format:


Editorial methodology

This care map has been based on a Map of Medicine care map developed according to the Map of Medicine editorial methodology. The content of this Map of Medicine care map is largely based on the clinical guidelines produced by the Royal Australian College of General Practitioners - General practice management of type 2 diabetes 2014-15. The pathway has been refined with practice-based knowledge provided by contributors with front-line clinical experience (see contributors section of this document). This localised version of the evidence-based, practice informed care map has been consulted by relevant stakeholder representatives.

Editor

Nick Jones, Service Integration Manager, Frankston-Mornington Peninsula Medicare Local
Type 2 Diabetes in adults
Medicine/Endocrinology/Diabetes

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The following were clinical contributors to the Diabetes pathway:

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Conflicts of interest
None declared

Disclaimers
It is not the function of the Pathways Program, Frankston-Mornington Peninsula Medicare Local 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.