Diabetes in Loddon Action Group

Health Professional Information Kit

The Diabetes in Loddon Action Group (DiLAG) is proudly supported by

Help in your region

Please contact your local health service for further information in your area.

Local Health Providers

Inglewood/Wedderburn

Inglewood and Districts Health Service
(Inglewood and Wedderburn sites)
Ph 5431 7000

Boort

Boort District Health, Ph 5451 5200
Northern District Community Health Service
Ph 5451 0200

Pyramid Hill

Northern District Community Health Service
Ph 5451 0200

Dingee

Dingee Bush Nursing Centre
Ph 5436 8309

Services

- **Diabetes Educator**
- **Foot Care/Podiatry**
- **Counselling**
- **Occupational Therapist**
- **Physiotherapist**
- **Dental Health**
- **Diabetes Support Group**
- **Supply of Sharps Containers**

Further support

National Diabetes Services Scheme Information

Local Outlets

Pharmacies:
Inglewood, Wedderburn

Pyramid Hill/Boort/Dingee:
Speak to your Diabetes Educator or Community Health Nurse

Diabetes Australia Infoline:
For more information, please call 1300 136 588

Sharps Containers

Collection and Disposal

Boort:
Boort Resource and Information Centre,
115 - 119 Godfrey Street, Boort

Inglewood:
Inglewood Guardian Pharmacy,
54 Brooke Street, Inglewood

Pyramid Hill:
Pyramid Hill Pharmacy Depot
15 Kelly St, Pyramid Hill

Serpentine:
Loddon Shire Council Office,
37 Peppercorn Way, Serpentine

Wedderburn:
Loddon Shire Council Office,
41 High Street, Wedderburn

Boort District Health
Ph 5451 5200

Northern District Community Health Service
Ph 5451 0200

IDHS Inglewood & Districts Health Service
Ph 5431 7000

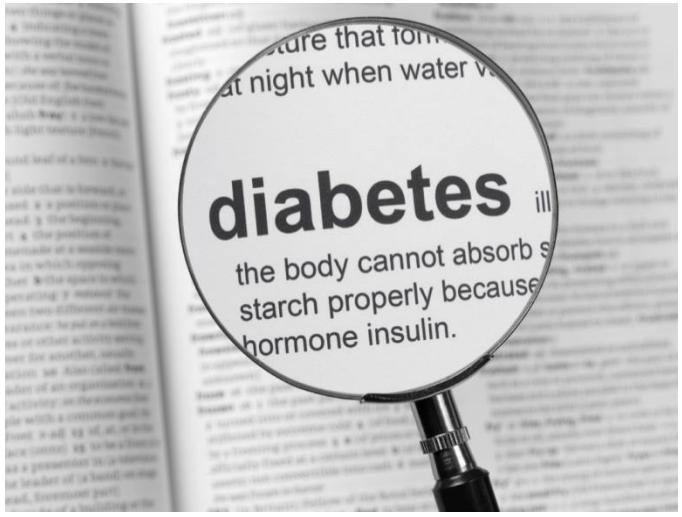
Loddon Shire
Ph 5437 7999

DBNC Dingee Bush Nursing Centre Inc.
Ph 5436 8309

phn Murray – An Australian Government Initiative

Primary Care Partnership Bendigo Loddon

DiLAG
Diabetes in Loddon Action Group



How to Live with Diabetes in Loddon

March 2015

Diabetes and YOU

Many people live well with Diabetes, however, if left untreated, or it is not well managed, this can result in serious complications including:

- Heart
- Eye
- Feet
- Kidney
- Nerve damage

You CAN achieve good health by managing your lifestyle including:

- Exercise
- Healthy eating
- Mental health and wellbeing
- Know your numbers, i.e. blood glucose (blood sugar) levels, blood pressure and cholesterol levels.

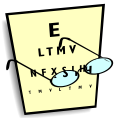
What to do now...

Speak with your local **GP** or health service who will link you with a diabetes educator or other health professionals.

A **Diabetes Educator** will help you plan for living with diabetes. They will discuss referrals and other necessary actions, such as:

- Registration for you with **NDSS (National Diabetes Services Scheme)** to allow supplies to be purchased at a reduced cost.
- **VicRoads** notification of your diabetes.

You may also be referred to a health professional (recommended annually and at diagnosis) for eg:



An Optometrist (1-2 years)

A Podiatrist (yearly)

A Dietitian

A Physiotherapist, Dentist, Occupational Therapist, Social Worker or Counsellor, if required.

Ongoing Care...

Your GP will organise every year:

Blood Tests

- Average blood glucose (blood sugar)
- Blood fats (Cholesterol)

Urine Test

- Protein in urine (Kidney Test)

For more information about Diabetes please see the following websites:

- **Diabetes Australia Victoria**
  http://www.diabetesvic.org.au/
- **Better Health Channel**
  http://www.betterhealth.vic.gov.au

Supporting you every step of the way

YOUR NEXT STEPS TO RECOVERY IN THE

LODDON SHIRE

The following services are available **24 hours a day** for anyone needing support

Lifeline	13 11 14
Kids Helpline	1800 551 800
Nurse on Call	1300 606 024
Suicide Line	1300 651 251
Sexual Assualt Crisis Line	1800 806 292
Gamblers Helpline	1800 156 789
Carers Support Services	1800 068 978
Family Violence Response Centre	1800 015 188
Mensline	1300 789 978
Maternal and Child Health Line	13 22 29

I'm in an emergency

Ambulance, Police, Fire
000

I need a doctor

Boort Medical Clinic
2 Coutts Street, Boort
03 5451 5220

Inglewood Medical Practice
3 Hospital Street, Inglewood
03 5438 3308

Wedderburn Health Clinic
24 Wilson Street, Wedderburn
03 5494 3511

Gannawarra Family Clinic
28 Gladfield Road, Pyramid Hill
03 5455 7305

I need a hospital

Boort District Health
31 Kiniry Street, Boort
03 5451 5200

Inglewood and Districts Health Service
3 Hospital Street, Inglewood
03 5431 7000

I need a nurse

Boort District Health
31 Kiniry Street, Boort
03 5451 5200

Inglewood and Districts Health Service
3 Hospital Street, Inglewood
03 5431 7000

Dingee Bush Nursing Centre
21 King Street, Dingee
03 5436 8309

I need a nurse

Northern District Community Health Service
24 Fitzroy Street, Kerang
03 5451 0200

I need a diabetes educator

Boort Medical Clinic
2 Coutts Street, Boort
03 5451 5220

Inglewood and Districts Health Service
3 Hospital Street, Inglewood
03 5431 7000

Northern District Community Health Service
24 Fitzroy Street, Kerang
03 5451 0200

I want help to quit smoking

Inglewood and Districts Health Service
3 Hospital Street, Inglewood
03 5431 7000

Northern District Community Health Service
24 Fitzroy Street, Kerang
03 5451 0200

I want to join an exercise group

Inglewood and Districts Health Service
3 Hospital Street, Inglewood
03 5431 7000

Boort District Health
31 Kiniry Street, Boort
03 5451 5200

Boort Resource & Information Centre
119-121 Godfrey Street, Boort
03 5455 2716

I need a counsellor

Northern District Community Health Service
24 Fitzroy Street, Kerang
03 5451 0200

Inglewood and Districts Health Service
3 Hospital Street, Inglewood
03 5431 7000

Boort Medical Clinic
2 Coutts Street, Boort
03 5451 5220

I need help at home

Loddon Shire Council
34 - 41 High Street, Wedderburn
37 Peppercorn Way, Serpentine
03 5494 1200

I need a pharmacy

Boort Community Pharmacy
108 - 112 Godfrey Street, Boort
03 5455 2179

Inglewood Pharmacy
30 - 36 Brooke Street, Inglewood
03 5438 3021

Pyramid Hill Prescription Depot
13 Kelly Street, Pyramid Hill
03 5455 7305

Wedderburn Pharmacy
71 High Street, Wedderburn
03 5494 3309

Visit **www.nhsd.com.au** for the most up to date health service information.

Pathways for Prediabetes, Type 1, Type 2 and Gestational Diabetes

Developed for the Department of Health and Human Services
- Loddon Mallee Region

State Government Victoria

Department of Health and Human Services

Pathways for Pre-diabetes, Type 1, Type 2 and Gestational Diabetes

These evidence - based pathways were developed to help guide clinicians in the Loddon Mallee region in the appropriate care and management of people with pre-diabetes and diabetes.

The pathways provide guidelines for the identification and management of pre-diabetes, type 1, type 2 and gestational diabetes mellitus, and are not intended to replace professional judgement or clinical expertise.

National and international guidelines informed the development of these pathways, and they have been reviewed and updated to reflect currently available evidence.

diabetes australia vic

These pathways are endorsed by Diabetes Australia - Vic.

Pathways for pre-diabetes, type 1, type 2 and gestational diabetes were developed for the Department of Health and Human Services, Loddon Mallee Region.

The pathways were prepared by the Collaborative Health Education and Research Centre (CHERC), a business unit of Bendigo Health. The subsequent review was facilitated by CHERC in 2013 with funding provided by the Department of Health and Human Services.

BENDIGO HEALTH

CHERC

Graphic Design - www.ybicreative.com.au

Table of Contents

The design of the original Loddon Mallee Regional Diabetes Pathways was based on the collective contribution of all members of the original working party, as listed within the initial pathways publication.

The review of the Loddon Mallee Regional Diabetes Pathways has been greatly informed by the working party, consisting of clinical experts from within the region, who have freely given of their time to guide and direct the review of these four pathways. Their enthusiasm, expertise and willingness to participate has ensured the successful review of the pathways.

MEMBERS OF THE LODDON MALLEE REGIONAL DIABETES PATHWAYS REVIEW PROJECT WORKING PARTY:

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Susan Kennett	Podiatrist, Bendigo Community Health Services, Bendigo
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Charlie Knight	Senior Aboriginal Health Worker, Bendigo and District Aboriginal Co-operative, Bendigo
Trisha Dunning	Chair in Nursing and Director of Centre for Nursing and Allied Health Research Deakin University and Barwon Health, Geelong
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Emily Roberts	Community Pharmacist, Bendigo
Catherine Fuller	Loddon Mallee Region (LMR) Primary Care Partnership (PCP) representative, Central Victorian PCP, Castlemaine
Carol Parker	Project Officer, Collaborative Health Education and Research Centre (CHERC) Bendigo Health, Bendigo
Sharan Ermel	Project Officer, CHERC, Bendigo Health, Bendigo

Glossary of acronyms & abbreviations

ACR	albumin:creatinine ratio.
AACP	Australian Association of Consultant Pharmacy
AAESS	Australian Association for Exercise and Sports Science
ADEA	Australian Diabetes Educators Association
ADIPS	The Australasian Diabetes in Pregnancy Society
ADS	Australian Diabetes Society
ATSI	Aboriginal and Torres Strait Islander
AUSDRISK	The Australian type 2 diabetes risk assessment tool
BGL	Blood glucose level
BMI	Body mass index
BP	Blood pressure
CALD	Culturally and Linguistically Diverse
CCM	Chronic care model
CDE	Credentialed diabetes educator
CHO	Carbohydrate
CVD	Cardiovascular disease
DAA	Dietitians' Association of Australia
DAFNE	Dose adjustment for normal eating
DA Ltd	Diabetes Australia (national organisation)
Diabetes Australia - Vic	Diabetes Australia (Vic)
DE	Diabetes educator
Dept.	Department
DHHS	Department of Health and Human Services
eGFR	Estimated glomerular filtration rate
EPC	Enhanced primary care
FBG	Fasting blood glucose
GAD	Glutamic acid decarboxylase
GCT	Glucose challenge test
GDM	Gestational diabetes mellitus
GP	General practitioner
HbA_{1c}	Glycated haemoglobin
HDL	High density lipoprotein
HMR	Home medicines review
HNF1B	Hepatic Nuclear Factor 1-beta
Hr	Hour
Ht	Height
Hx	History
ICU.	Intensive care unit
IFG	Impaired fasting glucose/glycaemia
IGT	Impaired glucose tolerance
K10	Kessler psychological distress scale
Kg/m2	Kilograms/metres2
LADA	Latent autoimmune diabetes
LDL	Low-density lipoprotein
LGA	Local government area
LSMP	Lifestyle modification program
MBS	Medicare Benefits Schedule
mmol/L	Millimoles per litre
MPHN	Murray Primary Health Network
NADC	National Association of Diabetes Centres
NCCCC	National Collaborating Centre for Chronic Conditions
NDSS	National Diabetes Services Scheme
NHMRC	National Health and Medical Research Council
NHPAC	National Health Priority Action Council
NICE	National Institute for Health and Clinical Excellence
OGTT	Oral glucose tolerance test
OHA	Oral hypoglycaemic agent
PBS	Pharmaceutical Benefits Scheme
PCP	Primary care partnership
PD	Prediabetes
PG	Plasma glucose
PIP	Practice incentive payment
RACGP	Royal Australian College of General Practitioners
RCAD	Renal Cysts and Diabetes
RCH	Royal Children's Hospital, Melbourne
RN	Registered Nurse
RBG	Random blood glucose
SBGM	Self blood glucose monitoring
SCTT2012	Service Coordination Template Tool 2012
SHPA	Society of Hospital Pharmacists Australia
SIP	Service incentive payment
SM	Self management
T1DM	Type 1 diabetes mellitus
T2DM	Type 2 diabetes mellitus
TCA	Team care arrangement
VBG	Venous blood glucose – laboratory tested
WHO	World Health Organisation
Wt	Weight
2hrG	2 hour OGTT
QID	4 times per day

Pre-diabetes **Type 1 Diabetes** **Type 2 Diabetes** **Gestational Diabetes** **Decision** **Action**

Introduction

Background

Diabetes is a chronic condition currently affecting an estimated 1.7 million Australians. Approximately 275 adults develop diabetes every day and it is now recognised as a National Health Priority Area.[1,2] Recent figures from the National Diabetes Services Scheme Australia, reveal that over 252,000, or 4.5%, of Victorians have diabetes. Of the ten local government areas (LGAs) within the Loddon Mallee region (LMR), all are now considered diabetes 'hotspots'. An area is designated a hotspot when more than 4% of its population has either type 1, type 2 or gestational diabetes mellitus.[1] The Central Goldfields local government area is one of the top five regional hotspots, with 7.6% of the population living with diabetes.[3]

In light of the growing diabetes epidemic, in 2009 the then Department of Health Loddon Mallee Region funded the development of the Pathways for Pre-diabetes, Type 1, Type 2 and Gestational Diabetes[4] (referred to herein as the 'Pathways'). Bendigo Health's Collaborative Health Education and Research Centre (CHERC) undertook the development of the Pathways, and following an extensive consultation process, they were endorsed by Diabetes Australia-Vic, and launched at the Regional Diabetes Forum 'Paving the Way: Pathways of Care for Diabetes', held in Bendigo on the 10th and 11th of September 2009.

Subsequent to the Pathways development, CHERC was engaged by the then Department of Health to develop a Strategic Plan[5] to guide the implementation, embed and promote the adoption of the Pathways across the Loddon Mallee Region. The Strategic Plan was formulated in consultation and collaboration with key stakeholders and industry leaders and submitted in April 2011.

One of the key recommendations within the Strategic Plan[5] was to update the Pathways on an ongoing basis. The then Department of Health Loddon Mallee Region engaged CHERC to undertake the review process in 2013. The Pathways contained herein, are the product of that review process, and cover the conditions of pre-diabetes, type 1 diabetes, type 2 diabetes and gestational diabetes mellitus. The Pathways are designed for clinicians and health support staff working in community, acute and sub-acute settings.

The Pathways for Pre-diabetes, Type 1, Type 2 and Gestational Diabetes

These Pathways are designed for use by clinicians to support evidence based best practice in the prevention, early recognition/identification, assessment, early intervention and optimal management of pre-diabetes, type 1 (T1DM), type 2 (T2DM) and gestational diabetes mellitus (GDM). Each of the Pathways consists of two parts; part one is the care pathway, which is a clinical decision tree that reflects current evidence, and is designed to guide clinicians decisions, referrals and actions based on presentation, risk and clinical assessment results. Part two is the ongoing self-management (SM) support pathway. This SM support pathway details the desired outcomes for the person at risk of, or with diabetes, and the details of each of the partnering health care team-members and their role in providing self-management support[6] for the person with diabetes or for those at risk of developing diabetes.

Key changes to the Pathways

This second version of the Pathways has several key changes. These are:

- Expansion of introduction to provide additional detail on systems to support optimal health outcomes, self-management, screening tools and other types of diabetes
- Adoption of the Australasian Diabetes in Pregnancy Society Consensus Guidelines for Gestational Diabetes diagnostic criteria[7]
- Removal of specific time-limited Medicare Benefits Scheme (MBS) items[8]
- Inclusion of links to additional resources for clinicians and health support workers.

Pathway limitations

It is acknowledged that within some areas of the region, not all the health professionals specified within these Pathways will be readily accessible due to local capacity issues and circumstances. In these cases, an alternative health professional may be a suitable substitute to fulfil the role outlined in these Pathways. For example, if a physiotherapist is not available, then potentially an exercise physiologist may undertake a similar role. There are a number of resources available for locating suitable health professionals within your specific local region; the Primary Care Partnerships are also a valuable source of this information. A list of these resources is included in Appendix I.

In addition, changes in circumstance and funding may affect referral conditions and program availability. These changes may occur within either short or long-term timeframes. Therefore, over time, programs or referral processes may undergo changes and no longer be current. References and weblinks are current at the time of going to publication.

Explanatory Notes

At risk populations

Risk Factors

There are lifestyle risk factors that can be modified to reduce an individual's risk of developing diabetes, and these include the level of regular physical activity, diet, weight, blood pressure, cholesterol and smoking.[1]

The non-modifiable risk factors for developing diabetes are:

- A family history of diabetes
- Age – the risk increases as we get older
- From Aboriginal or Torres Strait Islander background
- From ethnic backgrounds more likely to have type 2 diabetes such as Melanesian, Polynesian, Chinese or people from the Indian sub-continent
- Women who have:
    - given birth to a child over 4.5kg (9lb) or had gestational diabetes when pregnant
    - Polycystic Ovary Syndrome.[(1 p. 3)]

Type 2 diabetes (T2DM) mellitus was in the past known as 'mature-age onset diabetes', and usually occurred in people over the age 45 years.[1] Approximately 20% of older Australians, aged over 65 years, have diabetes and are at risk of developing complications, if they have not already at the time of diagnosis.[9] It is estimated that a quarter of residential aged care facility residents have been diagnosed with diabetes. In response to this, evidence based guidelines for the management of diabetes have been compiled and published and are available via the ADMA Clearinghouse link: http://www.adma.org.au/search.html?searchword=mckellar&searchphrase=all.[9]

Over recent years, there has been an increasing number of overweight and obese younger people, including children and adolescents, presenting with T2DM symptoms. Overall in Australia, the rates of obesity have increased from 19 to 24% of the adult population between 1995 and 2008, with 61% of adults being either overweight or obese based on body mass index (BMI) results in the 2007-08 time period.[10] Between 2000 and 2009, the incidence of insulin-treated type 2 diabetes rose from 74 per 100,000 people aged 10 years or over, to 117 per 100,000 people aged 10 or over.[10]

Other at risk groups

Individuals and communities identifying as Aboriginal and Torres Strait Islander (ATSI) or from specific culturally and linguistically diverse (CALD) backgrounds are potentially at higher risk of developing diabetic conditions. For example, the rate of diabetes is estimated to be three to four times higher for Aboriginal Australians,[11] with the prevalence as high as 30% in some communities.[12] The risk of death due to diabetes is reported to be almost seven times higher that of than non-Indigenous Australians.[12] It is essential that health professionals engage collaboratively with individuals and ensure that referrals to suitable services, such as the Aboriginal Health Workers, are initiated early and in consultation with the client to enable appropriate support and interventions. Diabetes Australia published a national policy document that outlines strategies to reduce the burden and prevalence for ATSI people and their communities.[12] Diabetes Australia-Vic has partnered with key agencies and made available resources on their website (http://www.diabetesvic.org.au/type-2-diabetes/aboriginal-and-torres-strait-islander) that are suitable for use with Aboriginal and Torres Strait Islander clients.[13]

In recognition of the higher prevalence of diabetes in CALD people, Diabetes Australia – Vic run awareness and prevention sessions in metropolitan areas. They also offer a free multilingual information line that connects callers to a diabetes educator and/or dietitian with the assistance of an interpreter. Clinicians are advised to refer to the Diabetes Australia – Vic Cultural Diversity Program webpage for details (http://www.diabetesvic.org.au/diabetes-prevention/prevention-programs/cultural-diversity-program).[13]

In addition, the National Diabetes Services Scheme (NDSS) produce and make available translated diabetes resources in a range of languages. Details are available on the NDSS Translated Resources webpage (http://www.ndss.com.au/en/Resources/Multilingual/).[14]

With the shift in the incidence of T2DM and abnormal glucose levels to younger age groups, and the trend for women having babies at a later age, the incidence of gestational diabetes mellitus (GDM) has increased by 21% between 2000-01 and 2009-10.[7,10] This is attributed to the increase from 3.6% to 4.4% of newly identified GDM cases in women aged between 15-49 years of age giving birth in this time period. [10]

There are specific cohorts of women who are identified as being at greater risk of developing GDM. Those at high risk of developing GDM include women with:

- Previous GDM diagnosis
- Previous baby with birth weight >4500gm or >90th centile
- Family history of diabetes mellitus (DM) (1st degree relative with diabetes or sister with GDM)
- Previously elevated blood glucose level (BGL)
- Maternal age ≥40years
- BMI >35kg/m2
- Polycystic ovary syndrome
- Corticosteroid and antipsychotic medication usage.[7 p.2]

In addition, women of Asian, Indian subcontinental, ATSI, Pacific Islander, Maori, Middle Eastern, or non-white African ethnic backgrounds have a moderate risk of developing GDM, as do pregnant women with a body mass index (BMI) of between 25 and 35 kilograms per metre squared.[7]

Prediabetes

Impaired fasting glucose (IFG) and impaired glucose tolerance (IGT) are conditions in which blood glucose levels are elevated but not high enough for a diagnosis of diabetes to be made. People with prediabetes are at increased risk of developing diabetes, cardiovascular and other macrovascular disease.[15] In Australia, the estimated number of people with pre-diabetes is somewhere between two and three million.

Systems for supporting optimal health outcomes

People at risk of, or living with diabetes, require a person centred, systematic approach to their assessment and management. Service coordination is paramount to ensure that the person with diabetes, or those at risk of developing diabetes, are placed at the centre of service delivery to maximise their opportunities for accessing the services that they require to manage their condition, prevent complications or disease progression and achieve their goals.[6] Service coordination enables consumers a seamless and integrated response from organisations that provide care and services in a cohesive and coordinated manner, while remaining independent. These principles are equally applicable to those clients with, and at risk of, developing diabetes across the continuum of care.[6]

Service coordination is underpinned by the following principles:

- a central focus on clients/consumers
- partnerships and collaboration
- the social model of health and the social model of disability
- competent staff
- a duty of care
- protection of consumer information
- engagement with a broad range of service sectors
- consistency in practice standards.(16 p.1)

The Victorian Department of Health and Human Services have endorsed the Wagner Chronic Care Model (Wagner CCM) as the structure for quality improvement for services providing care and support to those within the community living with chronic diseases, including diabetes.[17] The Expanded Chronic Care Model, which builds on the Wagner CCM, identifies essential interrelated elements in a system that strives for enhanced chronic care management. The elements identified are:

- the community
- health systems
- self-management support
- delivery system design
- decision support
- clinical information systems.(17 p.1)

Within the community setting, general practitioners (GPs) are often the first contact point for the person with, or at risk of developing, diabetes.[18] As such, a collaborative and structured approach to the identification, management and tracking of diabetes clients is necessary.

A systematic approach for GPs is facilitated by the use of:

- A disease register
- An active recall system to facilitate timely recall of all people when aspects of diabetes management require review (pathology, complication screening, monitoring, reviews and care planning).
- Flow charts
- Review charts.[18]

The Royal Australian College of General Practice (RACGP) and General Practice networks have resources to assist practices in establishing such systematic approaches to the care of their patients with diabetes.[18, 19] A key aspect of this care is undertaking an annual collaborative person centred review of their current status, goals and management with the involvement of members of the multi-disciplinary team.[19]

Annual Cycle of Care

The Annual Cycle of Care (Diabetes) provides minimum guidelines of care for a person with diabetes. General practitioners (GPs) working in an accredited practice, can apply for the Practice Incentive Program (PIP) with Medicare Australia and receive a Service Incentive Payment (SIP) for each cycle of care completed for

a person with diabetes, within an 11 to 13 month period.[10] The Medicare Australia website should be referred to for current relevant MBS items.[8] The activities specified within the cycle of care are considered a minimum standard, rather than reflecting best practice monitoring and management levels.[10, 18]. It would be anticipated that most people with T1DM and T2DM require more frequent monitoring and review.[18, 20] Regular medical visits provide opportunities for the person with diabetes and the general practitioner to discuss and explore the person's understanding and their concerns with monitoring their condition and maintaining good health.[18] Diabetes Australia publishes guidelines for general practice[18] that include a structured approach to the review and management of diabetes patients to optimise self and collaborative management, care planning and outcomes. The frequency for monitoring and investigations suggested within the Diabetes management in general practice[18] are outlined in the Table 1 (below), with the expected minimum cycle of care requirements that are needed for the Practice Incentive Payments (PIPs) [10, 20] included in parenthesis where applicable.

TABLE 1: GENERAL PRACTICE MEDICAL MANAGEMENT ACTIVITIES:

ACTIVITY	FREQUENCY / DESCRIPTION
Assess diabetes control by measuring HbA_{1c}	Six monthly (at least once during an annual cycle).
Review symptoms and self-monitoring practices	Three monthly review of reported symptoms and record of home testing and quality control results.
Review Smoking, Nutrition, Alcohol and Physical Activity (SNAP)	Three monthly reinforce key messages from dietitian and review nutrition, reinforce importance of regular and appropriate levels of physical activity (at least once a year for each).
Provide self-care education	Three monthly assess self-management practices & review feedback from diabetes educator (at least once a year).
Measure weight, height & calculate BMI	Three monthly (at least twice every cycle).
Measure blood pressure	Three monthly (at least twice every cycle).
Review goals of management	Annual review and update of problem priority list, goal establishment, eating plan, lifestyle, home monitoring and treatment. Full physical exam including cardiovascular and peripheral nervous systems, feet and eyes.
Review immunisation status	Annual review and re-immunisation as required for influenza, pneumococcal and tetanus.
Examine feet	Three monthly examination of feet, or if new symptoms or at risk (at least twice every cycle).
Measure total cholesterol, triglycerides and HDL	Annually if below target, more frequently if requiring active treatment (at least once a cycle).
Test for microalbuminuria & eGFR	At least once a cycle.
Eye examination by ophthalmologist or optometrist	Ensure that visual acuity and dilated fundus examination assessments are carried out at least every two years.
Review medication	At least once a year and consider referral for HMR if patient at risk of problems with medications.

Explanatory Notes

Self Management

Self-management is the cornerstone of diabetes care. Actively encouraging, supporting and involving people with diabetes in their self-management, promotes health and well being, improves quality of life, reduces depression and anxiety, significantly increases satisfaction with their treatment and reduces utilisation of health services.[17] The World Health Organisation, (cited in [21 p.1]) estimated that as much as 80% of type 2 diabetes could be prevented through interventions that supported adherence to healthy diet, regular physical activity and the avoidance of tobacco products. Optimal and effective self-management of diabetes is best supported by an evidence-based and collaborative approach to care involving ongoing feedback and communication between all parties.

Self- management (SM) is defined by Flinders University as:

The client (and family/carers as appropriate) working in partnership with their health care provider to:

- know their condition and various treatment options
- negotiate a plan of care
- engage in activities that protect and promote health
- monitor and manage the symptoms and signs of the condition(s)
- manage the impact of the condition on physical functioning, emotions and interpersonal relationships. (22 p.1)

Self-management is the ability of the client to deal with all that a chronic disease entails, including symptoms, treatment, physical and social consequences, and lifestyle changes.[22] The provision of self-management support for those at risk of developing diabetes, or those living with diabetes, goes beyond the provision of client education. It facilitates the development of client self-efficacy, problem solving skills and engenders the ability of the client to deal with condition symptoms, exacerbations, treatments and the necessary lifestyle changes to manage and reduce the potential negative impacts on their life and health.[23]

Life! Program

The *Life!* program is a Victorian lifestyle modification program that supports people at high risk of type 2 diabetes, heart disease or stroke to modify their lifestyle to prevent the onset of disease. Entry to the *Life!* program is via the patient's AUSDRISK score (≥12), their Absolute Cardiovascular Disease Risk Assessment score (≥10%), or if they have a pre-existing condition which is known to place them at increased risk of CVD or type 2 diabetes. See http://www.lifeprogram.org.au/for-health-professionals

Diabetes Educators

Credentialed Diabetes Educators' (CDE) are nationally recognised as providing quality assured diabetes self-management education. An Australian Diabetes Educators Association (ADEA) CDE is recognised as having met the following criteria:

- Authorisation to practice in an eligible health discipline
- Completion of an ADEA accredited graduate certificate course of study in diabetes education and care
- 1000 hours of experience in providing diabetes self-management education as defined by ADEA and in accordance with the Standards of Practice identified by ADEA
- Submission of a refereed report by a CDE
- Completion of a mentoring program
- Evidence of continuing education across all domains of practice for CDEs
- Commitment to the ADEA Code of Conduct for Diabetes Educators.[24]

Candidates eligible to apply for recognition as a CDE must hold a primary health care discipline qualification with a current registration or practicing certificate in one of the following disciplines:

- Registered nurse
- Accredited practicing dietitian (APD)
- Registered medical practitioner
- Accredited exercise physiologist
- Physiotherapist
- Registered midwife
- Accredited podiatrist
- Registered pharmacist who is also accredited by either the Australian Association of Consultant Pharmacy (AACP) or the Society of Hospital Pharmacists Australia (SHPA) to conduct medication management reviews.[25]

While recognising Credentialed Diabetes Educators (CDE) as the 'gold standard' in the provision of diabetes self-management education, the term 'diabetes educator' for the purpose of these pathways is taken to mean a person who has successfully completed an ADEA accredited graduate certificate in diabetes education and management.

Other Diabetes Management Education

The terms diabetes resource nurse and Aboriginal health worker, may be applied to a person employed within a health care service who has undertaken an appropriate and recognised level of training in diabetes. A number of diabetes courses are available, including two-day diabetes workshops conducted by Diabetes Australia-Vic and an online training course 'Diabetes Management in the General Care Setting', developed by the National Association of Diabetes Centres (NADC) a joint initiative between the Australian Diabetes Educators Association (ADEA) and the Australian Diabetes Society (ADS). Neither of these courses, on completion, entitles a person to use the title 'Diabetes Educator'.[25]

Other Types of Diabetes

Monogenic Diabetes (previously referred to as 'MODY')

Approximately 5-10 %[26] of diabetes does not fall neatly into the categories of T1DM or T2DM diabetes. There are six well recognised, but rare, genetic diabetes which are genetically inherited, often in an autosomal dominant pattern, so a very strong family history is a clue. These are:

- Genetic variation in Hepatic Nuclear Factor 1-alpha (HNF1A) – commonest, treated with sulfonylureas
- Glucokinase deficiency – treatable with diet
- Hepatic Nuclear Factor 1-beta (HNF1B (including Renal Cysts and Diabetes (RCAD)) – often needs insulin
- Genetic variation in Hepatic Nuclear Factor 4-alpha (HNF4A) – may be treated with sulfonylureas
- Genetic variation in Insulin Promotor Factor 1 (IPF1)
- Mutations of NEUROD1 gene [27, 28].

Clinical presentation of Monogenic Diabetes

Clinical presentations in people when a diagnosis of monogenic diabetes should be considered include:

- Neonatal diabetes and diabetes diagnosed within the first six months of life
- Familial diabetes with an affected parent
- Mild (5.5-8.5 mmol/l) fasting hyperglycaemia especially if young or familial
- Diabetes associated with extra pancreatic features, such as kidney cysts.[27-29]

Refer to nearest Endocrinologist for establishment of correct diagnosis.

Latent Autoimmune Diabetes of Adults (LADA)

This is a concept introduced in 1993 to describe slow-onset type 1 autoimmune diabetes in adults. Adults with LADA are often initially misdiagnosed as having T2DM in view of their age. It is estimated that 20% of persons diagnosed as having non-obesity-related T2DM may actually have LADA. Islet cell, insulin, and GAD antibodies testing should be performed on all adults who are not obese, that appear to present with T2DM diagnosed because of their age. If in doubt refer to nearest Endocrinologist for establishment of the diagnosis.[30]

Screening Tools

There are a large number of screening tools that can be utilised by health professionals to determine an individual's level of risk for various conditions, including diabetes. A number of these tools are also pertinent to people with diabetes or at risk of diabetes to assess their level of risk for developing complications and concurrent conditions. The Red book[21] provides clear guidelines for the timing of the appropriate screening tool administration. Four of these key screening tools that are relevant to people at risk of, or with, diabetes are referred to within the Pathways. A brief synopsis of these risk assessment tools is presented here.

AUSDRISK Screening Tool

The original AUSDRISK tool underwent revision, and the new version, dated May 2010 is available online via the Diabetes Australia website[31] It is available as both a download, and as an online interactive tool. The tool is designed to be completed by people, either in the community or in conjunction with their health care provider or support worker. Risk assessment using the AUSDRISK tool should begin at age 40 and from the age 18 in Aboriginal and Torres Strait Islanders[32] and will calculate a 'risk' score for the individual of developing diabetes within the next five years. However, the AUSDRISK may underestimate the degree of risk in Aboriginal and Torres Strait Islanders.[32] Those identified at 'high risk' are advised to follow up with their health professional to enable identification and implementation of preventative strategies.[31]

The assessment of risk with AUSDRISK tool is not suitable for:

- people with impaired glucose tolerance or impaired fasting glucose
- women with a history of gestational diabetes mellitus
- women with a history of polycystic ovary syndrome
- people presenting with a history of a cardiovascular disease event (e.g. myocardial infarction, stroke)
- people on antipsychotic medication. (32 p.6)

It is recommended that risk assessment for these groups of people should proceed to the second step of the case detection and diagnosis procedure, which is measurement of fasting plasma glucose, as outlined in the National Evidence Based Guideline for Case Detection and Diagnosis of Type 2 Diabetes.(32 p.6)

Kessler Psychological Distress Scale

The Kessler Psychological Distress Scale (K10) [33] is a simple screening tool for anxiety and depression, and although not specific to diabetes, it may be used during a consultation to assess the mental health state of the person with diabetes.[30] The K10 is incorporated into the Victorian Department of Health and Human Services Service Coordination Tool Templates (SCTT2012) [34] within the *Social and emotional wellbeing* profile available at: http://www.health.vic.gov.au/pcps/sctt.htm [34]

Explanatory Notes

Absolute Cardiovascular Disease Risk tool

The National Vascular Disease Prevention Alliance (NVDPA), an alliance of Diabetes Australia, the National Heart Foundation of Australia, Kidney Health Australia and the National Stroke Foundation, released the Guidelines for the Management of Absolute Cardiovascular Disease Risk, in May 2012.[35] The guidelines were approved by the National Health and Medical Research Council (NHMRC) and provide recommendations for the assessment and management of cardiovascular disease (CVD) risk in the primary prevention setting.The guidelines incorporate guidance on assessing CVD risk in all adults over 45 years of age (over 35 years for ATSI peoples).

Assessment of CVD risk based on the combined effect of multiple risk factors (absolute CVD risk) is more accurate than the use of individual risk factors, because the cumulative effects of multiple risk factors may be additive or synergistic. People with diabetes and aged 60 years and older, or with microalbuminuria (>20 mcg/min or urinary albumin:creatinine ratio >2.5mg/mmol for males, >3.5mg/mmol for females, regardless of age) are considered at high risk (>15%) of cardiovascular disease and therefore, do not need assessment with the Absolute Cardiovascular Risk tool.[35] However, interventions to reduce risk factors within these groups can still be effective in reducing overall risk. [(35 p. 5)]

The Absolute Cardiovascular Disease Risk tool[35] is available online:

http://www.cvdcheck.org.au/

Kidney Health Check Tool

People with diabetes are at higher risk of developing chronic kidney disease (CKD), and as a comorbidity, CKD increases the mortality and morbidity in this population.[36, 37] As the onset of CKD may be insidious, and people may be asymptomatic, early detection and treatment for CKD is paramount, as it can reduce the progression of this disease state by as much as 50%, or in some cases be reversible.[37] Also, early intervention to reverse the progression of CKD may reduce an individual's associated risk of CVD by as much as 50%.[37]

Routine testing for people with diabetes can easily be carried out in primary care and community settings through the ascertainment of the albumin:creatinine ratio (ACR). The kidney health check tool, for those at increased risk of (CKD) is available online:

http://www.kidney.org.au/HealthProfessionals/DetectingCKD/tabid/632/Default.aspx.[36]

Problem Area in Diabetes (PAID) Tool

The Problem Area in Diabetes tool[18] is a 20 item, psychometrically sound tool for detecting diabetes related stress. Each of the 20 item focuses on a different problem that is commonly experienced with diabetes. People with diabetes rate each item on a zero to four scale, indicating the level each issue affects them personally. A score of zero for an item indicates that it is not a problem, whereas a score of three or greater indicates that an issue is a somewhat serious or serious problem for them. Item scores are summed and standardised to produce a score out of 100, with higher scores indicating higher levels of diabetes related stress that warrant further exploration. The PAID tool is available in the 2014-15 edition of the RACGP *General practice management of type 2 diabetes* guidelines.[18]

Pre-diabetes Care Pathway

The Australian Type 2 Diabetes Risk Assessment (AUSDRISK) is a questionnaire screening tool which accurately predicts a person's risk of developingT2DM within the next five years [18, 31, 3]

Self-screening using the AUSDRISK tool is recommended for adult general population regardless of perceived risk[31]

People at risk of developing T2DM and Pre-diabetes

- Aged 40 years and over
- A family history of T2DM
- Aboriginal and Torres Strait Islanders (ATSI) from age 18[11]
- From culturally and linguistically diverse backgrounds aged 35 years and over, including those from the Pacific Islands, Malta, the Middle East, North Africa, Indian sub-continent, China, and Vietnam[13]
- Overweight or obese (BMI > 25kg/m2). Waist circumference is an indicator of abdominal fat which increases risk of T2DM and CVD
- Women who have had GDM
- Women with Polycystic Ovary Syndrome who are overweight
- Smokers
- Physical inactivity
- Those taking certain medications including steroids and anti-psychotic medications[1,3,15,18]

Person performs self-assessment of T2DM risk using AUSDRISK tool[31]

AUSDRISK score
Low risk ≤ 5
Intermediate risk 6 – 11
High risk ≥ 12[31]

≤ 5

Promote importance of healthy lifestyle choices for prevention of T2DM, PD and CVD
Provide information on local community based LSMP/self-management interventions
Encourage continued good health[16] including addressing smoking, nutrition, alcohol intake, and physical activity and 5% weight reduction[16]

6 - 11
≥ 12

GP/health professional confirms AUSDRISK score [31, 34]

Perform FBG (laboratory tested) if not done in last 12 months. Results indicate:
< 5.5 mmol/L (diabetes unlikely)
5.5 – 6.9 mmol/L (diabetes uncertain)
> 7.0 mmol/L (diabetes likely)[18]

FVBG ≥ 7.0 mmol/L

Diabetes Likely

No / **Yes**

Are symptoms of diabetes present?

Recheck FBG > 24 hours. In the presence of illness wait until well[32]

< 7.0mmol/L

Result of FBG

F ≥ 7 mmol/L

< FVBG 5.5mmol/L
Low Risk

Are there identified risk factors for T2DM & PD?

Yes / **No**

Recheck FBG

Recheck FBG 3 yearly

FVBG 5.5 - 6.9mmol/L

Diabetes uncertain

Perform OGTT
Results indicate:
FBG < 6.1 mmol/L or 2hr VBG < 7.8mmol/L **(diabetes unlikely)**
2hr VBG 7.8 – 11mmol/L (IGT) **(prediabetes)**
F ≥ 7 or 2hr VBG ≥11.1mmol/L **(diabetes)**[16, 41]

FBG<6.1 mmol/L or 2hr VBG

Diabetes unlikely

'2hr VBG 7.8 – 11mmol/L'

Person diagnosed with pre-diabetes.
Refer to
· LSMP/Diabetes Educator*
· Dietitian· Exercise physiologist
LINK TO PRE-DIABETES ONGOING SELF-MANAGEMENT SUPPORT PATHWAY

F ≥ 7 mmol/L or
2hr VBG ≥11.1 mmol/L

Link to Type 2 Diabetes Care Pathway

* People with AUSDRISK score of 12 and are aged over the age of 45, OR aged 18 years and are of either Aboriginal or Torres Strait Islander descent OR aged 18 years and over and have been previously diagnosed with GDM or heart disease are eligible for Life! Program. The patient must not be currently pregnant, have diabetes, angina/ angioplasty/ myocardial infarction (diagnosed in the last 3 months), or clinically active cancer [18, 39]

Pre-diabetes Ongoing Self-Management Support Pathway

DESIRED OUTCOMES
- identify and screen for T2DM & PD
- diagnosis and early intervention for people diagnosed with PD
- prevent and delay progression to T2DM with intensive, evidence based lifestyle modification interventions
- annual screening for T2DM, CVD[18, 37]

A person with prediabetes requires referral for intensive Life Style Modification Program (LSMP) by GP

T2DM has been excluded with recent FBG[26]

Reassess AUSDRISK score – Pre-diabetes adds 6 points to initial AUSDRISK score[31]

Score 11 & less

Score 12 & over

Lifestyle Modification Program
- not eligible for Life! program; consider referral to other locally available LSMPs
- consider 'Life on Line' or telephone coaching[18, 39]

Consider referral to appropriate and locally agreed allied health professional:
- dietitian
- diabetes educator
- exercise physiologist/physiotherapist

Lifestyle Modification Program
- eligible for LSMP eg. Life! Program if aged 45 years and over
- an ATSI person aged 18 years or older is also eligible for Life! Program
- consider referral to other locally available self-management interventions & LSMPs[18]

Role of GP:
- provide a systematic approach to PD management with systems for care
- annual review of modifiable lifestyle risk factors for T2DM and CVD
- annually perform a clinical CVD risk assessment including BMI, waist circumference, BP, FBG & lipids
- strict control of CVD risk factors is a priority[18]
- consider aspirin therapy[18]
- provide dietary and exercise advice
- consider referral to other allied health professionals based on local community availability and person's need
- psychosocial stress may increase individual risk of developing T2DM. Screening with K10 tool can identify people with depression and anxiety
- support and promote self-management practices
- review immunisation status

People with Pre-diabetes should receive same target goals of BP and lipid management as people with T2DM.

Refer to the MBS website[8] for relevant:
- Aboriginal and Torres Strait Islander adult health check item numbers, if person aged 15-54 (inclusive) or T2DM
- risk evaluation if person aged 40-49 or conduct diabetes risk evaluation as part of the 45 year old check or if the person is aged 40-49 years. Check MBS for item numbers, descriptors and explanatory notes [8,15,18-19,29,41]

Role of LSMP FACILITATOR/DIABETES EDUCATOR

Provide evidence-based interventions which promote and support healthier lifestyle change & choices in prevention of T2DM

LSMPs promote self-management and self- determination by addressing modifiable lifestyle risk factors for T2DM using behaviour change techniques, counselling and goal setting. For example:
- the Life! Program
- diabetes educators (based on local agreement)
- other community based diabetes self-management groups and LSMP's available in the Loddon Mallee region

Contact Murray Primary Health Network or Community Health Centres for available programs in your area

Role of ABORIGINAL HEALTH WORKER

Provide culturally appropriate support and counselling to promote understanding of PD and T2DM prevention[13,18]

Role of DIETITIAN

Assess nutritional needs, develop personalised eating plans, offer nutritional counselling, support, weight management and specific nutritional advice for people with PD, dyslipidaemia & hypertension[41-42]

Role of PHARMACIST:
- perform home medication review (HMR) to identify medicines that may be increasing BGL & to assess medication compliance

Feedback and communication between all parties is crucial to achieving optimal health and well being for a person with prediabetes[17]

Role of EXERCISE PHYSIOLOGIST/PHYSIOTHERAPIST

Provide individual assessment, physical activity education, exercise prescription and behaviour-change counselling
- regular physical activity and decreasing sedentary behaviours are key messages and should be provided by all members of the multi-disciplinary team
- exploring individual goals and preference for physical activity and linking in with local exercise interventions to encourage long term self-management[21]

Role of PRACTICE NURSE, COMMUNITY HEALTH NURSE & DIABETES RESOURCE NURSE
- establish and maintain systems for care and identify people who may be at risk of T2DM and PD and organise access for aged-related health checks
- promote healthy lifestyle modification with high emphasis placed on T2DM being preventable consistent with Dietary Guidelines for Australian Adults & Physical Activity and Sedentary Behaviour Guidelines
- support ongoing self-management practices with advice and information which is current & appropriate
- reinforce feedback key messages from LSMP facilitators and other members of the multi-disciplinary team [19, 21, 39]

Type 1 Diabetes Care Pathway

Person presents with:
- hyperglycaemia (RBG > 11.1 mmol/L)
- polyuria
- polydipsia [45]

(Note: HbA_{1C} should NOT be used to diagnose T1DM)

Does person have?
- non-fasting ketonuria (2++)
- non-fasting ketonaemia (>1.0)
- marked weight loss [45]

No → Consider diagnosis of Type 2 Diabetes if there are NO signs and symptoms of:
- ketonuria
- polyuria, polydipsia & weight loss
- other features of the metabolic syndrome
- family Hx of autoimmune disease
- absence of islet antibodies[45]

Yes → Person with initial diagnosis of T1DM requires immediate referral to medical practitioner

Yes / **No** → **Link to Type 2 Diabetes Care Pathway**

Person well – ambulatory service provision

Criteria include:
- BGL elevated, but stable
- no acute illness
- no signs of ketoacidosis
- 24 hr access to clinical advice [45, 46]

Ambulatory care at diagnosis is considered to be routine.[45-47,62] Survival skills education and self-management support referrals should be initiated in the ambulatory setting.

OPTIONS

Person unwell - requires emergency department admission for stabilisation, diagnosis and initial management[45]

Criteria includes signs and symptoms of:
- ketones > 3mmol/L
- polyuria
- polydipsia
- weight loss
- abdominal pain
- weakness
- vomiting
- confusion
- dehydration
- deep sighing (kussmaul) respirations
- smell of ketones
- lethargy, drowsiness
- acidaemia pH<7.3 [45, 48] OR if clinicians are unhappy to send person with diabetes home

Following stabilisation admit to inpatient setting

Person well – but requires hospital admission for initial management

Criteria includes:
- geographically isolated
- age less than 2 years old[45]
- physical/mental disability which may impede self-management
- no telephone available in the home
- language or communication difficulties
- profound grief reaction in family
- individual dependent on a carer who is unable to take responsibility for safe insulin administration [45-47]

Admit to inpatient setting and refer for survival skills education and self-management support

Refer to diabetes educator (To be seen as soon as possible; triage according to demand)

Refer to endocrinologist/ physician (adults) and paediatric endocrinologist/ paediatric physician (children and adolescents)

Consider referral to: mental health worker and/or social worker (for support for psychological effects of diabetes and/or assistance with Centrelink/ health care card) where appropriate

Refer to dietitian Initial contact within first week then 4-6 sessions over first month [45]

Discharge home and refer to GP for ongoing management

Following survival skills phase and initial management, GP to refer all people with T1DM, family and carers for assessment, education and treatment within the first 12 months. Provide information and registration / notification forms for NDSS & VicRoads. Feedback between GP, PWD, carers and multi-disciplinary team[18]

Refer to:
- podiatrist
- optometrist/ophthalmologist
- exercise physiologist/physiotherapist
- community health / sexual health worker as required

→ Link to Type 1 Diabetes Ongoing Self-Management Support Pathway

Note:
For ambulatory persons - Survival skills education & self management support to be provided in community setting

For inpatients - Survival skills education & self management support to be provided in inpatient setting

Type 1 Diabetes Ongoing Self-Management Support Pathway

DESIRED OUTCOMES.

- achieve optimal target management goals of BGLs, and lipid control
- support optimal psychosocial adjustment to diabetes
- monitor growth and development (children and adolescents)
- prevent/ early detection of macrovascular and microvascular complications with screening
- promote self-management practices
- improve quality of life [18-19, 33, 42,45, 48-51]
- HbA_{1c} ≤ 7% (range 6.5 - 7.5)[18]

Role of ENDOCRINOLOGIST/PHYSICIAN/PAEDIATRICIAN

Review- 3 monthly for children and adolescents & minimum of annually for adults

Initial contact- assessment of client including medical history, complications, recent diabetes history, family history, vascular risk factors, foot/eye/vision examination, urine albumin excretion, urine protein, serum creatinine, BP & lipids, Insulin initiation and adjustment as required

Ongoing contact

- HbA_{1c} measurements based on individual need
- screening for micro vascular and macrovascular complications
- assess sexual health, discuss contraception and provide pre-conception advice as needed[45]

Microvascular complications screening is critical for person with T1DM

Role of EXERCISE PHYSIOLOGIST/PHYSIOTHERAPIST

Educate on

- safe BGLs for exercise
- exercise in relation to insulin, nutritional needs pre and post exercise, delayed hypoglycaemia post exercise
- the importance of foot checks post exercise
- the importance of maintaining a moderate level of activity long term
- monitoring BGL's pre and post exercise when commencing an exercise program

Integrate into local community based exercise options when appropriate to encourage long term self-management and establish and maintain a system of recall and review [19, 49]

Role of PODIATRIST

- annual structured foot surveillance as minimum for adults, children and adolescents
- people with 'high risk' feet should be managed and assessed by a podiatrist
- check for skin conditions, shape and deformity, shoes, impaired sensory nerve function and vascular supply establish and maintain a system of recall and review [19, 49]
- provide foot care and and self-management education[19, 49]

Role of OPTOMETRIST / OPHTHALMOLOGIST

- on diagnosis and yearly assessment for adults; adolescents after 2 years of diabetes and 5 years for children
- assess visual acuity, new vessel formation
- urgent referral to ophthalmologist if sudden changes occur[49]

Role of GP

- provide and maintain all elements of annual cycle of care[18]
- Vic Roads notification / immunisation status
- management planning, TCA & mental health care plan (as needed)
- ensure recommended annual screening completed (including CVD and CKD[21])
- assess sexual health, discuss contraception and provide pre-conception advice as needed
- support for family & carers
- ATSI people should receive culturally appropriate support and interventions
- assess oral health & refer to oral health professional under available Medicare Australia dental items [16, 45]

Role of PHARMACIST

- conduct an annual HMR/Medscheck [43]
- provide education regarding medication usage, safe storage

Role of DIABETES EDUCATOR
Initial contact- survival education

- describing the diabetes disease process and treatment options
- monitoring blood glucose, urine/blood
- ketones (when appropriate)
- discuss and demonstrate insulin initiation, management and skill acquisition
- preventing, detecting and treating acute complications e.g. hypoglycaemia/hyperglycaemia and sick day management
- NDSS registration
- provide information /registration form for NDSS and Vic Roads
- sharps disposal and safe practices

Ongoing contact (at a minimum of annual review)

- pathophysiology of diabetes and long term complications
- glycaemic control
- education regarding the potential effects of physical activity, including hypoglycaemia and how to manage/ prevent occurrence
- travel and diabetes
- promoting pre-conception care and management during education regarding travel (where required)
- children & adolescents – provide support to carers to assist with this process where required
- age-appropriate education on sexuality, smoking, alcohol and drugs, employment, fitness to drive
- re-assess education requirements
- establish and maintain a system of recall and review with ongoing contact at a minimum of annually [19, 45, 50]

Role of DIETITIAN
Initial contact- survival education

- establish dietary patterns and preferences in the context of social and cultural situation
- determine usual routine and activity
- determine age related nutritional needs that impact upon dietary advice
- start process of enabling person/family/carers to self manage dietary component of diabetes

Ongoing contact - minimum of annual review

- check for height, weight changes, growth indicators
- dietary intake including CHO types and distribution/ counting, meal planning, alcohol and lifestyle impact, non eating habits
- exercise and BG management including CHO adjustment
- further education/self management/goal setting as required
- establish and maintain a system of recall and review[19,45, 51]

Role of ALLIED MENTAL HEALTH PROFESSIONAL / SOCIAL WORK

Initial contact

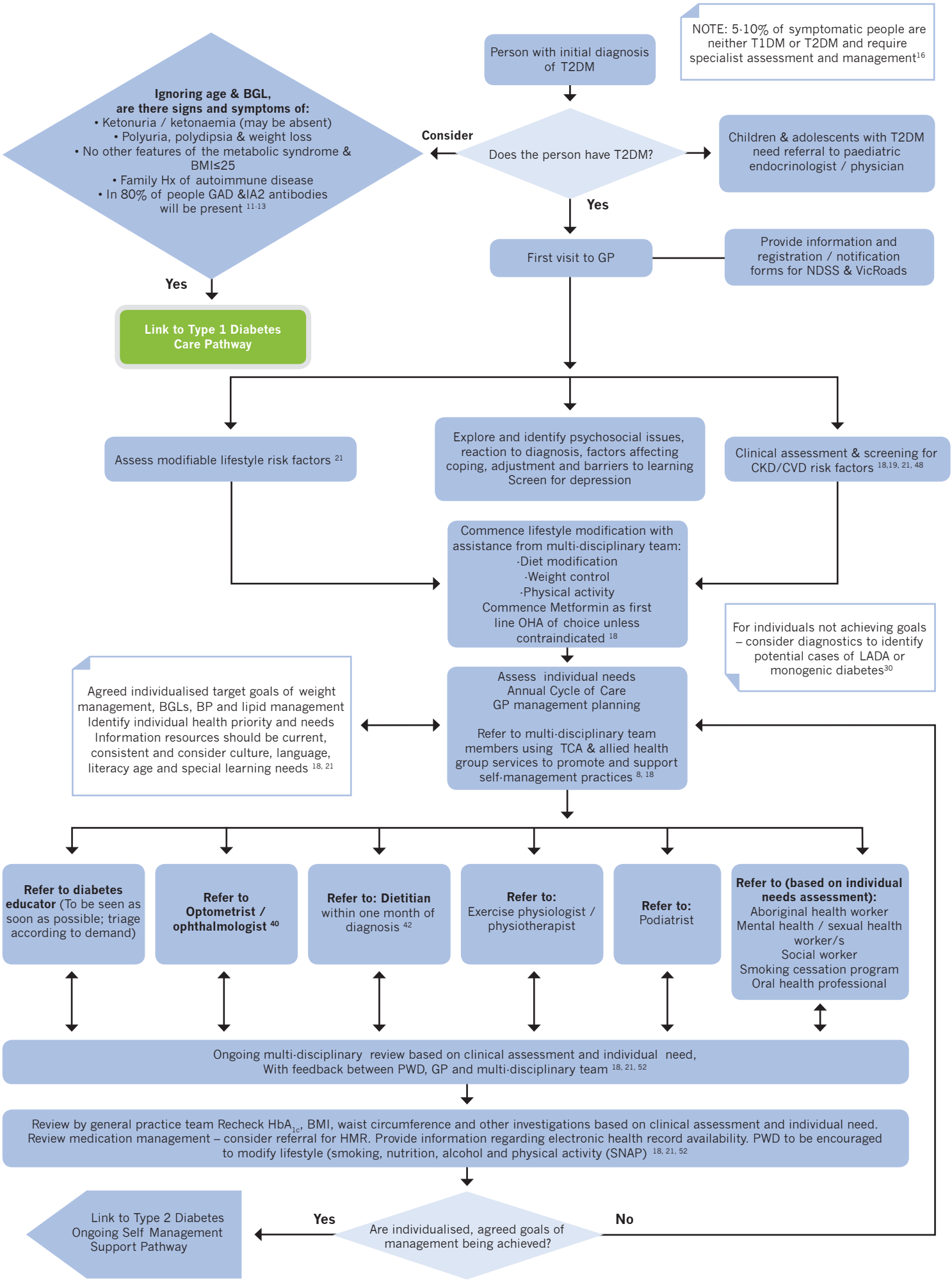
- assess for client adjustment issues, limited social support , needle phobia, depression, anger and anxiety
- assess the typical range of emotional reactions to the diagnosis of T1DM guilt, grief, marital and personal stress
- children and adolescents need age-related assessment establish and maintain a system of recall and review provide support for family & carers [19, 45, 57]

Role of social worker:

- support with accessing Centrelink, and assessing health care card eligibility where applicable
- assist a person with T2DM address psychological, social, emotional, financial and practical issues that may affect daily living
- establish and maintain a system of recall and review [10,18-19]
- refer to support groups where appropriate

Feedback and communication between all parties is crucial to achieving optimal health and wellbeing for a person with T1DM, their family and carers[18]

Type 2 Diabetes Care Pathway



Type 2 Diabetes Ongoing Self-Management Support Pathway

DESIRED OUTCOMES:
- achieve optimal target management goals of BGL's, BP and lipid control
- support optimal psychosocial adjustment to diabetes
- prevent / early detection of macrovascular and microvascular complications with screening
- promote self-management practices
- quality of life[18-19,33,40,42,48,53-54]
- HbA_{1c} ≤ 7% (range 6.5 - 7.5)[18]

Role of PHARMACIST
- conduct a Home Medication Review or Medscheck for people with diabetes living at home, who meet eligibility criteria [43]

Role of COMMUNITY HEALTH NURSE
- promote and support optimal health and well being and assist with optimal adjustment to living with diabetes
- establish and maintain a system of recall and review [19]

Role of ABORIGINAL HEALTH WORKER
- provide culturally appropriate practical support and counselling to promote understanding of T2DM amongst Indigenous people
- establish and maintain a system of recall and review [18-19]

Role of GP
- provide continuity and coordination of care
- annual cycle of care
- management planning & TCA
- multi-disciplinary referrals using allied health service MBS items
- review metabolic control (HbA_{1c}, self-monitoring of BGLs)
- surveillance and screening for macrovascular & microvascular complications, annual lipids, U&E's & micro-albuminuria
- explore psychosocial issues, particularly depression, social isolation, sexual health, family stress. Screen using K10 screening tool and refer to appropriate allied mental health professional
- for people with an HbA_{1c} > 8% for 6 months, referral to an endocrinologist/physician for assessment and management should be considered as appropriate
- monitor for osmotic symptoms/hypoglycaemic events
- in frail/elderly; consider maintaining HbA_{1c} at 8 or above
- ensure person with diabetes is on statin therapy if PBS eligible [8, 18-21, 33]

Role of PRACTICE NURSE
- establish & maintain systems for care, and under direction from GP assist with GP management planning, TCA and annual cycle of care
- conduct annual nursing review [8, 18-20, 40, 48, 53 57]

Role of ORAL HEALTH PROFESSIONAL
- provide optimal dental care for people with chronic and complex care needs who require assistance with oral health

Medicare dental items are currently available for people with diabetes using the EPC program (refer to MBS website)[8]

Role of SOCIAL WORKER
- assist a person with T2DM address social, emotional, financial and practical issues that may affect daily living
- support with accessing Centrelink, health care card eligibility
- establish and maintain a system of recall and review [19]
- refer to support group where applicable

Role of DIABETES EDUCATOR
- provide & consolidate knowledge and understanding of diabetes
- provide education and support regarding medication management and insulin initiation as required
- provide education, support and skills training regarding blood glucose management, hyper/hypo management, sick day management and sharps disposal
- identify and address gaps in learning and provide ongoing support and counselling, facilitating optimal adjustment to living with diabetes
- provide education and support as appropriate regarding driving and diabetes, and education regarding the potential effects of physical activity, including hypoglycaemia and how to manage/ prevent occurrence
- NDSS registration
- establish and maintain a system of recall and review, with annual review as a minimum [19, 33, 52, 55]

Role of DIETITIAN
- provide nutritional assessment and nutrition prescription, education, goal setting and ongoing reviews
- annual review is part of care
- establish and maintain a system of recall and review [19,42,48]

Role of EXERCISE PHYSIOLOGIST/PHYSIOTHERAPIST
- provide individual assessment, physical activity advice, exercise prescription and behaviour-change counselling
- regular physical activity and decreasing sedentary behaviours should be a key message
- exploring individual goals and preference for physical activity, and linking in with local community based exercise interventions when appropriate to encourage long term self management
- establish and maintain a system of recall and review [18-19, 56]

Role of PODIATRIST
- perform initial foot assessment, at diagnosis
- following initial assessment a podiatrist may consider a PWD at "low risk" of foot complications and able to receive ongoing foot screening from an appropriately trained health professional
- people with 'high risk' feet should be managed and assessed by a podiatrist
- annual foot assessment should be conducted by a podiatrist, and is part of ongoing care
- establish and maintain a system of recall and review [18, 54]
- provide footcare self-management education

Role of OPHTHALMOLOGIST / OPTOMETRIST
- ensure all PWD receive a dilated fundus examination and visual acuity assessment at initial diagnosis and at least every 2 years [18,43]

Role of ENDOCRINOLOGIST / PHYSICIAN
- ensure all people with complicated problems related to their diabetes receive expert clinical advice and management
- reviews are based on clinical judgment and individual need

Role of ALLIED MENTAL HEALTH PROFESSIONAL
- provide psychological assessment and therapy from eligible clinicians using Medicare GP mental health care items and better outcomes in mental health care program
- establish and maintain a system of recall and review [19, 31, 38]

Feedback and communication between all parties is crucial to achieving optimal health and wellbeing for a person with T2DM[19]

Gestational Diabetes Care Pathway

This Pathway is not designed for women with pre-existing T1DM or T2DM

Woman has pregnancy confirmed

Perform risk screening for GDM[7]

Moderate risk factors: [7]

- Ethnicity: Asian, Indian subcontinent, Aboriginal, Torres Strait Islander, Pacific Islander, Maori, Middle Eastern, non-white African
- BMI 25-35kg/m^2

High risk factors: [7]

- Previous GDM
- Previously elevated BGL
- Maternal age ≥40years
- BMI >35kg/m^2
- Polycystic ovary syndrome
- Family history of DM (1st degree relative with diabetes or sister with GDM
- Previous baby with birth weight >4500gm or >90th centile
- Medications: corticosteroids, antipsychotics

***Note:**
Diagnostic criteria for GDM *:7, 58-60
- 75g OGTT
- F ≥ 5.1 mmol/L
- 1 hr glucose ≥ 10.0mmol/L
- 2 hr glucose ≥ 8.5mmol/L

* **GCT and 3 day high carbohydrate diet not required**

Risk factors identified? **Yes** → Only 1 moderate risk factor? **No** → (High risk)

Only 1 moderate risk factor? **Yes** → **Moderate risk:**
- Screen with random or fasting glucose early in pregnancy
- Follow with OGTT if clinicaly indicated

Risk factors identified? **No** → Perform routine 75gm *OGTT at 24-28 weeks

Is the result diagnostic of GDM?* **No** → Follow up with GP/ obstetrician for routine care during pregnancy

Is the result diagnostic of GDM?* **Yes** → A woman with GDM is considered a high risk pregnancy [47]
Manage in high risk clinic where able

High risk (2 moderate risk factors or 1 or more high risk factors):
Screen early following conception with a 75gm OGTT with venous samples taken fasting, one and two hours post
Repeat if clinically indicated or at 24-28 weeks gestation

A woman with GDM is considered a high risk pregnancy [47] Manage in high risk clinic where able →
- Refer to diabetes educator
- Refer to obstetrician
- Refer to dietitian
- **Ultrasound at 32-34 weeks** If foetal weight > 80th centile or abdominal girth > 95th centile, rescan at 36-37 weeks to guide timing and mode of birth

Elevated SBGM? (measured QID)

No → FBG < 5.0 and 2hr post prandial <6.7mmol/L : Woman to continue with diet and exercise managment[61]

Yes → Persistent hyperglycaemia (on more than 2 occasions) FBG >5.0 or 2 hour post prandial ≥6.7mmol/L: Refer woman to obstetrician/ endocrinologist for initiation of insulin or metformin[61]

FBG < 5.0 and 2hr post prandial <6.7mmol/L : Woman to continue with diet and exercise managment[61] → Review SBGM

Review SBGM →
- **Clinically uncomplicated** Usual pregnancy care with close BGL and clinical monitoring[7] (2 weekly visits until 38 weeks, then weekly)
- **Clinically complicated:** Obstetric management (not suitable for shared care & consider delivery < 38weeks[61] (2 weekly visits until 38 weeks, then weekly)

Persistent hyperglycaemia (on more than 2 occasions) FBG >5.0 or 2 hour post prandial ≥6.7mmol/L: Refer woman to obstetrician/ endocrinologist for initiation of insulin or metformin[61] → Review SBGM (reported weekly to DE)

Review SBGM (reported weekly to DE) →
- **Good control** and no macrosomia or complications – consider delivery full term[61] Fortnightly visits till 36 weeks then weekly
- **Poor control,** macrosomia or complications – increase proactive management and consider delivery <38weeks[61] Fortnightly visits till 36 weeks then weekly

Woman requires BGL monitoring in the first 24hrs post delivery and GP appointment at 6 weeks post-partum. As part of hospital discharge – give pathology slip and instructions for 75gm 2hrs OGTT prior to 6 week check. Annual OGTT for high risk GDM women contemplating pregnancy; fasting PG every 1-2 years for low risk GDM women[7]. Refer to local institution policies and procedures for site specific management strategies.

Gestational Diabetes Ongoing Self-Management Support Pathway

DESIRED OUTCOMES.

- achieves optimal glycaemic control through pregnancy
- delivers a healthy baby
- provision of ongoing advice, information and screening for prevention of T2DM
- all women should receive a glucose meter, BGL diary, written information regarding GDM and dietary advice[7]

Role of GP & PRACTICE NURSE

- establish & maintain systems for care to ensure recommended ongoing follow up & screening. At first postnatal visit ensure OGTT has been performed and results reviewed. If OGTT normal, rescreen with FBG in 3 years. If OGTT abnormal rescreen FBG annually and link into appropriate pathway
- annual OGTT for high risk GDM women contemplating pregnancy; fasting PG every 1-2 years for low risk GDM women[7]
- screen with AUSDRISK tool to determine risk of T2DM. Link into appropriate pathway
- provide contraception advice and pre-conception counselling and consider OGTT prior to future conceptions[7, 19]

Role of ABORIGINAL HEALTH WORKER

- provide culturally appropriate practical support and counselling to promote understanding of GDM and long term prevention of T2DM amongst indigenous people [19]

Role of ENDOCRINOLOGIST/PHYSICIAN

- medically manage and monitor diabetes during pregnancy
- initiate insulin if blood glucose goals are exceeded on 2 or more occasions within a 1-2 week period, particularly in association with clinical or investigational suspicion of macrosomia [61]

Role of LSMP/SELF-MANAGEMENT INTERVENTION

- address modifiable lifestyle risk factors using behaviour change techniques, counselling and goal settings to prevent T2DM
- refer to locally available community health self-management and LSMP's (3 months post delivery)

Feedback and communication between all parties is crucial to achieving optimal health and well being for a woman with gestational diabetes

Role of OBSTETRICIAN & MIDWIFE

All women with GDM are considered to have a high risk pregnancy

- manage and monitor a woman through pregnancy
- timing and frequency of foetal monitoring depends on other complications such as pre-eclampsia, hypertension, ante-partum haemorrhage, intrauterine growth retardation
- ultrasonography should be considered at around 34 -36 weeks gestation to detect abnormalities of foetal growth and polyhydraminios
- if weight > 80th centile or abdominal girth >95th centile, then ultrasound to be repeated at 36-37 weeks to guide delivery mode and timing
- encourage breast feeding
- consider referral to a lactation consultant [7]

Role of DIETITIAN

Dietary therapy is the primary therapeutic strategy for the achievement of acceptable glycaemic control in GDM and should:

- conform with the principles of dietary management of diabetes in general
- meet the nutritional requirements of pregnancy
- be individualised for each person depending on maternal weight and BMI
- be culturally appropriate
- refer on to exercise physiologist as required

  Note: moderate exercise is an adjunct therapy with benefits when used with dietary modifications and/or insulin[7]

Role of PAEDIATRICIAN

- BGL should be checked 1 hr post delivery, then before the first 4 feeds for 24 hours
- a paediatrician should be present at delivery if significant neonatal morbidity is suspected[7]

Role of DIABETES EDUCATOR

Provide information, advice, support and assist with diabetes management. Important aspects of education for the woman and her partner include:

- the implications of GDM to herself and her baby
- the initial dietary and exercise recommendations
- SBGM is the optimal choice of monitoring glycaemic control with one fasting and one postprandial BGL obtained daily as a minimum for clinically uncomplicated pregnancies
- SBGM should be undertaken QID (1 x fasting and 3 x 2hr post prandial) in clinically complicated or women with persistent hyperglycaemia
- the frequency of testing can be increased or decreased depending on results and progress of pregnancy
- insulin initiation and skill acquisition
- survival skills and sick day management
- contraception and pre-conception advice for future pregnancy
- refer on to exercise physiologist as required
- NDSS registration with GDM specific form
- peer support [7, 61]

Minimum goals of SBGM:

- fasting capillary BG L < 5.0 mmol/L
- 1hr postprandial capillary BG L < 7.4 mmol/L
- 2 hr postprandial capillary BGL < 6.7mmol/L[59]

Appendix I Additional useful resources

Connecting Care

[online] www.connectingcare.com

A comprehensive web-based directory providing secure messaging and e-referral

National Health Services Directory (NHSD)

Operated by Healthdirect Australia

[online] www.nhsd.com.au

The NHSD provides a consolidated and comprehensive national, not just Victorian, directory of health services and provider information. It includes both private and public sector providers, and was implemented by Healthdirect Australia on behalf of all Australian Governments.

The NHSD has been constructed through extending and enhancing the software that is already used for the Victorian Human Services Directory.

Murray Primary Health Network

37 Rowan Street, Bendigo 3550

PO Box 2220 Bendigo Delivery Centre, Bendigo 3554

Phone: 03 5441 7806 Fax: 03 5442 6760 Email: info@murrayphn.org.au

Web: http://www.murrayphn.org.au

Primary Care Partnerships (PCPs)

Funded by the state government

[online] http://www.health.vic.gov.au/pcps/about/index.htm

Primary Care Partnerships (PCPs) are made up of a diverse range of member agencies. All PCPs include hospitals, community health and local government as core members of the partnerships. Other types of agencies such as area mental health, drug treatment and disability services are also members of PCPs. The Primary Health Networks work in partnership with the PCPs .The partners can also be specific to local issues and needs. For example, some PCPs have engaged with the police, schools and community groups.

Loddon Mallee Region PCP contacts:

Bendigo-Loddon PCP

165 -171 Hargreaves Street, Bendigo

PO Box 1121, Bendigo, VIC, 3552

Phone: 03 5448 1624 Fax: 03 5448 1699

Email: blpcp@bchs.com.au

Web: http://www.blpcp.com.au/index.aspx

Campaspe Primary Care Partnership

14 Village Drive Rochester

PO Box 164, Rochester, VIC, 3561

Phone: 5484 4485 Fax: 5484 2291

Web: http://www.campaspepcp.com.au/index.php

Southern Mallee Primary Care Partnership

Suite 7, 194-208 Beveridge Street

PO Box 1752, Swan Hill, VIC, 3585

Fax: 03 5033 2199

Email: administration@smpcp.com.au

Web: http://www.smpcp.com.au/

Central Victorian PCP

Room 9, Ground Floor,

Workspace Australia, 1 Halford Street,

PO Box 687, Castlemaine, 3450

Phone: 03 5472 5333 Fax: 03 5472 5461

Email: admin@centralvicpcp.com.au

Web: http://centralvicpcp.com.au/

Northern Mallee Community Partnership

154a Ninth Street Mildura. 3500

PO Box 10184, Mildura, VIC, 3502

Phone: 03 5021 7671 Fax: 03 5021 7672

Email: nmcp@schs.com.au

Web: http://www.nmcp.org.au/

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Notes

Pathways for Pre-diabetes, Type 1, Type 2 and Gestational Diabetes

For up to date information and access to additional resources, please visit;

www.diabetesaustralia.com.au

or call 1300 136 588

To submit feedback on this resource, or report an update, please contact Bendigo Loddon PCP on blpcp@bchs.com.au

The Diabetes in Loddon Action Group (DiLAG) is proudly supported by