Government of **Western Australia**
Department of **Health**

The Western Australia Framework for Action on Diabetes and Diabetes Service Standards 2014

Diabetes and Endocrine Health Network

Suggested citation:

Department of Health, Western Australia. Western Australian Diabetes Standards. Perth: Health Strategy and Networks, Department of Health, Western Australian; 2014.

Important disclaimer:

All information and content in this Material is provided in good faith by the WA Department of Health, and is based on sources believed to be reliable and accurate at the time of development. The State of Western Australia, the WA Department of Health and their respective officers, employees and agents, do not accept legal liability or responsibility for the Material, or any consequences arising from its use.

Contact information:

For further information contact Health Strategy and Networks, WA Department of Health on (08) 9222 0200 or healthpolicy@health.wa.gov.au.

Contents

Contents 3
Foreword 4
1. Introduction 5
2. Vision 5
3. Commitment to action 6
4. The case for change 7
5. Findings of the ‘Diabetes in WA: Prevalence and services in 2012’ review 7
6. Action following the ‘Diabetes in WA: Prevalence and services in 2012’ review 8
7. Implementation of action on diabetes 11
8. Evaluation 11
9. Western Australian Diabetes Standards 2014 12
Appendix 1 - Resources for action on diabetes 24
Appendix 2 - Type 2 diabetes goals for optimum management 28
Appendix 3 - Acknowledgements 30
References 31

Foreword

Diabetes has been described as 'the silent pandemic'. [1] It does not hit the headlines in the same way as other diseases such as heart disease and cancer, yet its burden is immense, on a global scale, across Australia and within our State. Every day, the lives of too many Western Australians are affected, directly or indirectly, by this far-reaching condition. The numbers are projected to increase significantly, driven largely by rising obesity.

In recognition of the challenge we face, the Western Australia Diabetes and Endocrine Health Network has galvanised the expertise and commitment of clinicians, consumers, carers and other partners in developing a framework and standards to improve the accessibility and quality of diabetes prevention and care services for our population.

I am delighted to support the **Western Australia Framework for Action on Diabetes and Diabetes Service Standards 2014**. This document provides a shared vision and resources to support the delivery of better services for people at risk of or living with diabetes by 2025. It demonstrates a concerted effort by key organisations to work in partnership to:

a) support diabetes sufferers to self-manage their condition and thus minimise its impact
b) reduce the risk of others getting the disease.

I encourage all agencies and individuals who are involved in planning, delivering or using health services in Western Australia to make use of this framework. Now more than ever, it is important that we collaborate and co-ordinate our resources to enhance the lives of all Western Australians touched by this silent pandemic.

Professor Bryant Stokes

ACTING DIRECTOR GENERAL

1. Introduction

Building on the WA Diabetes Model of Care (2008), this document sets out a bold vision for improvement in diabetes prevention and care in Western Australia (WA).

It showcases a commitment to action by key partner organisations and makes the case for change, highlighting the need for urgent, concerted and co-ordinated action across the health system and across the care continuum. It highlights the findings of a major review of diabetes prevalence and services in WA in 2012 [2] and outlines the developments which followed. Guiding principles and resources for the planning, purchasing and provision of diabetes services are described within this publication.

The standards are a key resource for all those involved in diabetes care, including consumers and carers, indicating the level of service which people at risk of and living with the condition should expect to receive within the next decade, wherever they live in the State.

2. Vision

Our vision is that, by 2025, people in WA at risk of or living with diabetes will be served by a health system which is centred around their individual needs, maximises their health outcomes and provides co-ordinated and sustainable services which meet the WA Diabetes Service Standards (shown within this document).

We will seek to achieve this vision by partner organisations working together to better connect and enable the health system to deliver the services needed by our people.

3. Commitment to action

By the end of December 2015, we will:

- introduce quality improvement indicators for the WA Diabetes Service Standards and accountability arrangements for performance against these
- review and assess current services and proposed future service developments, with the aim of meeting the WA Diabetes Service Standards by 2025
- take action towards meeting the WA Diabetes Service Standards and supporting achievement of our shared vision
- report on action that we have taken within the year and its impact, where applicable.

We will do this in accordance with the guiding principles for diabetes services and the resources provided to deliver these services.

Philip Aylward	Chief Executive, Child and Adolescent Health Service
Frank Daly	Chief Executive, South Metropolitan Health Service
Shane Kelly	Chief Executive, North Metropolitan Health Service
Jeff Moffet	Chief Executive, WA Country Health Service
Andrew Wagstaff	Chief Executive Officer, Diabetes WA
Des Martin	Chief Executive Officer, Aboriginal Health Council of Western Australia
Kate Clarke	Chief Executive Officer, South West WA Medicare Local
Learne Durrington	Chief Executive Officer, Perth Central and East Metro Medicare Local
Terina Grace	Chief Executive Officer, Panorama Health Network Ltd.
Paul Hersey	Chief Executive Officer, 360° Health + Community
Chris Pickett	Chief Executive Officer, Kimberley-Pilbara Medicare Local
Rodney Redmond	Chief Executive Officer, Bentley-Armadale Medicare Local
Brenda Ryan	Chief Executive Officer, Goldfields-Midwest Medicare Local
Christa Riegler	Chief Executive Officer, Fremantle Medicare Local

4. The case for change

Diabetes is a serious and complex metabolic condition which can lead to complications if not well-managed. These include heart attacks, stroke, blindness, kidney failure, foot ulcers and depression. Diabetes is forecast to become the highest contributor to the disease burden in Australia by 2018. [3] A National Diabetes Strategy is currently in development following publication of a framework document [3] which had a strong emphasis on prevention. There is a lot of evidence that lifestyle changes (achieving a healthy body weight and moderate physical activity) can help prevent the development of type 2 diabetes. [4]

As at June 2014, there were 1,133,412 people in Australia registered with the NDSS (the National Diabetes Services Scheme) as being diagnosed with diabetes. This represents around 5% of the national population. In Western Australia, the figure was 112,592, representing 4.4% of the State's population. If diabetes continues to rise at the current rates, up to 3 million Australians over the age of 25 years will have diabetes by the year 2025. [1]

The average annual healthcare cost per person with type 2 diabetes is $4025 if there are no associated complications. However, this rises to as much as $9,645 in people with complications. For type 1 diabetes, this can rise to $16,698 for people with both micro and macro complications.[1]

Diabetes impacts disproportionately on certain groups of people. For example, Aboriginal Australians experience significantly higher rates of diabetes and its complications than the rest of the population. It is estimated that over 30% of Aboriginal adults in the Kimberley have diabetes. People living in rural and remote areas have less access to health services and experience poorer health outcomes than their metropolitan counterparts.[5]

5. Findings of the 'Diabetes in WA: Prevalence and services in 2012' review

In 2012, the WA Diabetes and Endocrine Health Network (DEHN) commissioned a major diabetes review which resulted in the report, 'Diabetes in WA: Prevalence and services in 2012'.[2] This identified how the existing diabetes health system and services compared with the recommendations of the Diabetes Model of Care (2008). The key findings were:

- Diabetes service planning is complicated by many, changing providers, services, programs and funders in public, private and nongovernment settings.
- The care system is loosely organised, with referral pathways often ad hoc and relationship-based.
- A person's access to diabetes care varies considerably according to diabetes type and complexity and by service type, setting and location. Service availability differs significantly by region.

- Although variable with diabetes type, complexity and location, consumers find it hard to identify:
    - entry points into the care system
    - next steps in their diabetes management
    - ongoing service access.
- Issues such as population profile and density, workforce availability and turnover, and the needs of Aboriginal populations require country health regions to adopt a flexible approach to service delivery.
- Specialist services are concentrated in the Perth metropolitan area, with tertiary level services all located in inner metropolitan suburbs.
- People living in rural and remote communities are required to travel to Perth or to a visiting specialist service at a regional centre.
- Opportunities exist for specialist, tertiary hospital services to provide formalised consultancy advice, education, training and other up-skilling for country health generalist workforce and services.

6. Action following the 'Diabetes in WA: Prevalence and services in 2012' review

Following the 2012 review, a Diabetes Statewide Working Group (a sub-group of the DEHN Executive Advisory Group) was formed to consider and act on the findings. This Group developed a set of guiding principles for action to improve diabetes services (see Table 1) and started the process of planning future services based on these. Figure 1 sets out the process for delivering service change in accordance with population needs. Appendix 1 highlights key resources to support those responsible for the planning, purchasing and provision of diabetes services. These resources include the Diabetes Model of Care (2008) and the Cycles of Care Model, which has been used to structure the Diabetes Service Standards 2014.

A Diabetes Action Summit was held in November 2012, bringing together around 80 stakeholders from across the State to discuss the challenges of diabetes prevention and management in WA, to consider best practice and solutions, and to develop the WA Diabetes Service Standards. There were two extensive consultations with all the WA health networks and targeted stakeholders (over 3000 people statewide). These generated over 120 comments in total, all of which were carefully considered by an expert working group. The standards were subsequently refined and endorsed by the DEHN Executive Advisory Group.

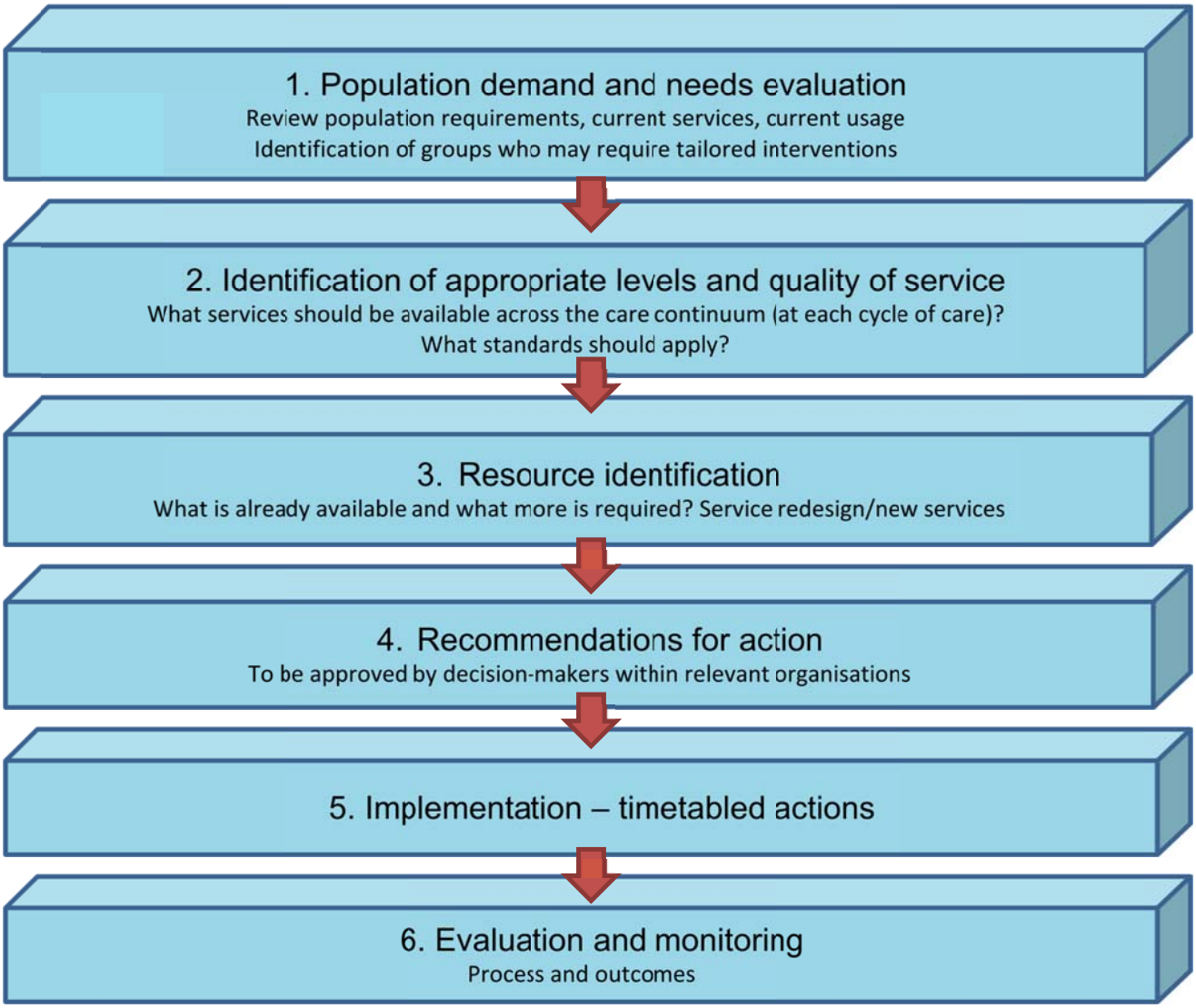
In April 2014, the WA Country Health Service (WACHS) Executive endorsed the WACHS Integrated Diabetes Service Model and in May 2014 the South Metropolitan Health Service hosted an Integrated Diabetes Services Workshop in conjunction with partner organisations. The North Metropolitan Health Service has worked closely with partner organisations on its Executive Partnership Group on the development of diabetes care pathways.

Table 1: Guiding principles for planning, purchasing and provision of diabetes services in Western Australia developed by the Diabetes Statewide Working Group

1. Comprehensive and progressive	We will seek to make necessary changes across the healthcare system (including State, Commonwealth, private and non-government organisations) to enable the WA Diabetes Services Standards to be delivered on a consistent basis.
2. Consumer and carer centred	We will place the needs of consumers and carers first. The following 'at risk' and vulnerable groups will be prioritised: ▪ Aboriginal people ▪ people from culturally and linguistically diverse (CALD) backgrounds ▪ people from lower socio-economic groups ▪ older people ▪ people with acute psychiatric illnesses ▪ people in rural and remote areas.
3. Better quality, better use of resources	We aim to improve the quality of diabetes services and use of resources on a sustainable basis within a better integrated, more equitable, co-ordinated and proactive health care system. ▪ Prevention and self-management (the active participation of people in their own health care) will be promoted. ▪ Access to appropriate services across the state will be a priority for improvement. The contribution of the primary and community care sectors will be maximised, and the resources of hospital departments and expertise of specialists will be focused on those patients with the most complex care needs. ▪ Innovative ways of delivering services will be explored, to provide services closer to home, reduce costs and improve quality. ▪ Maximum use will be made of technology (notably telehealth), where appropriate, to enable the provision of support from secondary and tertiary hospital-based specialists and to build the capacity of outer metropolitan and country health services to manage patients with complex care needs. ▪ There will be a focus on locally/regionally based care co-ordination and multi-disciplinary team working, recognising that people with diabetes commonly have other health conditions (co-morbidities). ▪ Referral and care pathways and information sharing will be strengthened to enable more timely, co-ordinated and effective patient care.
4. Evidence-based	We will use evidence, best practice and research drawn from local, national and international sources in our planning.
5. Partnership	We will engage stakeholders (including consumers and carers), co-operate and collaborate to achieve the best possible diabetes health outcomes for the people of Western Australia.

Figure 1: Summarised diabetes service development process

(source: Adapted from the Collaborative for Healthcare Analysis & Statistical Modelling, University of Western Australia; unpublished)



7. Implementation of action on diabetes

Partner organisations within the health system (including State, Commonwealth, private and non-government organisations) will be responsible for implementation of those actions to which they commit themselves in order to improve the planning, purchasing and provision of diabetes services. Reconfiguration and reform of the existing system and services will be needed to deliver the WA Diabetes Services Standards. Where new investment may also be required, a business case will need to be presented to the decision-makers within the relevant organisation(s). Within the Department of Health, where proposed service developments are beyond the jurisdiction of a single area health service, funding and implementation arrangements will be co-ordinated and agreed between area health services.

8. Evaluation

The WA DEHN will work with partner organisations to develop and implement quality improvement indicators in relation to the WA Diabetes Service Standards to consistently evaluate the quality of diabetes services in the State. We also aim to evaluate the impact of service changes by assessing clinical outcomes, consumer satisfaction, service activity levels and cost effectiveness, so we can assess progress towards our vision.

9. Western Australian Diabetes Standards 2014

These standards are based on evidence from validated, referenced sources. They have been adapted for WA and have been endorsed by the WA Diabetes and Endocrine Health Network following extensive consultation with partners across the health system.

The standards do not necessarily reflect the *current* availability and quality of services *throughout* WA; they are designed to indicate best practice and to be challenging and aspirational, yet realistically achievable within a ten year timeframe across the State (including in rural and remote areas). Flexibility will be required in their implementation in different areas, to take account of differing circumstances. The standards will guide development of future plans to connect and enable the health system in WA to deliver consistent, sustainable and evidence-based services to improve the prevention and management of diabetes across the State. Implementation of the standards may necessitate the development of complementary documents, such as local care pathways, in due course. In recognition of the continual emergence of new research and evidence, the standards will be reviewed and updated over time.

Modern therapies, technology and resources

Within the context of finite financial resources, the aim is to utilise the best available therapies, technology and other resources to support health professionals in delivering the best possible care.

Person centred care

The standards are designed to reflect person (sometimes referred to as patient or consumer) centred care (see definitions section).

Self-management

Throughout the standards, there is an emphasis on encouraging the person at risk of/with diabetes to self-manage their health in partnership with their social supports and care team(s) (recognising that diabetes is often linked with other long term conditions). Flexibility is needed to respond to the differing needs of individuals with differing levels of understanding, motivation and capacity to self-manage their diabetes, with appropriate support from their carers and/or health professionals.

Key definitions/criteria used within the standards

'High risk' of developing diabetes – any of the following risk factors would indicate high risk (based on the Australian Type 2 Diabetes Risk Assessment (AUSDRISK) tool) [6]

- People with impaired glucose tolerance or impaired fasting glucose
- Any Aboriginal person aged over ten years (or past the onset of puberty) who 7
- Is overweight or obese
- has a positive family history of diabetes
- has signs of insulin resistance
- has dyslipidaemia
- has received psychotropic therapy
- has been exposed to diabetes in utero
- Certain people of culturally and linguistically diverse (CALD) backgrounds aged 35 and over (specifically Pacific Islanders, people from the Indian subcontinent and people of Chinese origin)
- People aged 40 and over who have one or more of the following risk factors:
- Obesity (Body Mass Index (BMI) ≥30 kg/m2)
- Hypertension
- All people with clinical cardiovascular disease (myocardial infarction, angina, stroke or peripheral vascular disease)
- Women with polycystic ovarian syndrome who are obese
- People on antipsychotic drugs
- People with a history of depression
- Women with a history of gestational diabetes mellitus

Risk factors for gestational diabetes mellitus (GDM)

- Previous GDM
- Ethnicity: Asian (including Indian), Aboriginal, Pacific Islander, Maori, Middle Eastern, non-white African
- Maternal age >40 years
- Family history of type 2 diabetes (including a first degree relative with GDM)
- Obesity, especially if BMI >35 kg/m2
- Hypertension prior to 20 weeks
- Previous macrosomia (baby with birth weight more than 4000g)
- Previous baby with congenital abnormalities
- Polycystic ovarian syndrome
- Medications: corticosteroids and antipsychotics

Pre-diabetes

Pre-diabetes (impaired glucose metabolism) includes two conditions, Impaired Fasting Glucose (IFG) and Impaired Glucose Tolerance (IGT), where the blood glucose levels are higher than normal but still not high enough to be diagnosed as type 2 diabetes.

‘Complex’/‘highly complex’ care

This type of care is required for:

- All people with type 1 diabetes
- People with type 2 diabetes who require insulin and/ or oral hypoglycaemic agents (OHAs) and have at least one other co-morbidity or complication requiring referral from community care. For pregnant women with type 2 diabetes, complications may include fetal concerns, such as fetal macrosomia (baby’s birth weight projected to be more than 4250g).
- Women with gestational diabetes mellitus (GDM) who require insulin and/or OHAs and who have at least one other co-morbidity or complication requiring referral from community care, including fetal concerns such as fetal macrosomia.

Severe hypoglycaemia

- This term refers to when a person with diabetes requires the assistance of another person because of inability to self-treat with oral carbohydrate due to confusion or unconsciousness.

Multi-disciplinary diabetes team

The key relationships in diabetes care are between:

- The person with diabetes
- Their family or carer (as appropriate)
- Their General Practitioner (GP)

Care should be tailored to the individual’s requirements and other members of the multi-disciplinary diabetes team may include the following health professionals **(note: this is not an exhaustive list, nor in priority order)**:

- Aboriginal Health Worker
- Accredited Practising Dietician
- Cardiologist
- Credentialed Diabetes Educator/ Diabetes Educator
- Dentist
- Endocrinologist and/or General Medicine Specialist
- Exercise professional
- Nurse Practitioner
- Neurologist
- Ophthalmologist/ Optometrist (with appropriate training)
- Pharmacist
- Physiotherapist
- Podiatrist
- Psychologist/ Social Worker
- Psychiatrist
- Renal specialist

Multi-disciplinary diabetes teams are conventionally located in secondary and tertiary hospitals and can also be located in the community or provide services via Telehealth.

Telehealth

The term Telehealth includes advice from one health care professional to another and/or consultation with a person who is receiving advice or care either by telephone or video conference.

Telehealth enables tertiary and secondary level care to be provided where appropriate to support care given in community settings, notably in rural and remote areas.

Person (patient or consumer) centred care

The Australian Commission of Safety and Quality in Health Care [8] describes person centred care as:

'…health care that is respectful of, and responsive to, the preferences, needs and values of patients and consumers…key principles of patient centred approaches include:

- treating patients, consumers, carers and families with dignity and respect
- encouraging and supporting participation in decision making by patients, consumers, carers and families
- communicating and sharing information with patients, consumers, carers and families
- fostering collaboration with patients, consumers, carers, families and health professionals in program and policy development, and in health service design, delivery and evaluation.'

Self-management/care

Defined as 'an evolutionary process of development of knowledge or awareness by learning to survive with the complex nature of diabetes in a social context,' [9] there are seven essential self-care behaviours which predict good outcomes in people with diabetes [9]:

- healthy eating
- being physically active
- monitoring of blood sugar
- compliance with medications
- problem-solving skills
- coping skills
- risk-reduction behaviours (e.g. smoking cessation and alcohol moderation)

Community care

Care which is provided outside the hospital setting by a range of providers, including GPs, Pharmacists, Aboriginal Medical Services, community groups and others.

Specialist diabetes and obstetric management and care

- Screening for diabetes complications
- Diabetes education including advice on risk factors
- Blood glucose monitoring
- Prescription of insulin or oral hypoglycaemic agents (OHAs) if deemed necessary

1. COMMUNITY CARE STANDARDS – FOR DETECTION AND MANAGEMENT OF PRE-DIABETES*

Standard 1.1

a) A screening tool such as the Australian Type 2 Diabetes Risk Assessment Tool [10] (AUSDRISK) should be used to identify those who may be at high risk* of developing diabetes.
b) Adults over the age of 40 who are not already identified as high risk* should be screened by a health care professional every three years to identify those at increased risk of having diabetes or of developing the disease in the next five years.
c) For anyone who is identified as high risk*, testing should be undertaken by an appropriately trained health care professional on an annual basis to detect pre-diabetes. The testing involves measurement of fasting plasma glucose (a blood test) and if there is an equivocal fasting or random plasma glucose result, an oral glucose tolerance test (OGTT) may also be required. [6]

Standard 1.2

a) Those identified through screening as being 'pre-diabetic'* or at high risk* of developing diabetes should be informed by their health care professional as to the nature of their condition. Appropriate self-management strategies should be discussed, along with appropriate advice on smoking, nutrition, alcohol and physical activity (SNAP) risk factor reduction. [6, 11]
b) Care should be co-ordinated and integrated to ensure that the person at risk of diabetes has access to community based diabetes prevention services including evidence-based, intensive lifestyle behaviour change programs, delivered by an appropriately trained health care professional. [12-14]

*Refer to key definitions/criteria section (p.13)

2. INTEGRATED CARE STANDARDS – FOR PEOPLE WHO ARE DIAGNOSED WITH DIABETES AND ARE CARED FOR PRIMARILY IN THE COMMUNITY, WITH SECONDARY/ TERTIARY INPUT WITHIN THIS SETTING, IF REQUIRED

Standard 2.1

At the time of diagnosis and on at least an **annual** basis thereafter, people with diabetes should be assessed by their health care professional and encouraged to participate (with their carer, if appropriate) in an **annual** cycle of care planning, including setting individualised management goals (see Appendix 2).

The assessment and care planning should preferably take place on a face to face basis or alternatively can be done via telehealth.

The assessment and diabetes management plan should be documented and should include (but not necessarily be limited to) the following:

- Diet
- Physical activity
- Weight
- Medication
- Potential complications, including foot, eye, renal (kidney), cardiovascular complications
- Mental health, including cognition
- Immunisation status

Specialist referral should be undertaken if considered necessary.

At the time of diagnosis, people with diabetes should be informed about and encouraged to register with the National Diabetes Services Scheme (NDSS).

Standard 2.2

For the main potential complications of diabetes, the level of risk should be identified and intervention based accordingly as follows:

- Foot complications [13]
  - Low risk – **at least annual** assessment
  - Intermediate – at least six monthly assessment
  - High (includes all Aboriginal people with diabetes until assessed otherwise) – at least three monthly assessment
- Eye complications [6, 15]
  - All people with diabetes should have a dilated fundus examination and visual acuity assessment at the diagnosis of diabetes and at least every two years
  - Examine people at high risk* without diabetic retinopathy at least annually
  - Refer to an ophthalmologist urgently (for review within four weeks) if there is any suspicion of DME (diabetic macular edema) or PDR (proliferative diabetic retinopathy)
  - Vision threatening retinopathy e.g. vitreous haemorrhage or new vessels on the optic disc should be referred to an ophthalmologist immediately
- Renal (kidney) complications [6, 15]
  - Kidney status in people with type 2 diabetes should be assessed by annual screening for albuminuria (protein) in the urine and eGFR (estimate glomerular filtration rate).

- Cardiovascular complications [6]
    - Risk should be assessed using a diabetes-specific absolute vascular risk calculator (the Fremantle Diabetes Study Calculator can be used) and categorised as follows:
        - High risk - > 15% chance of a cardiovascular event in the next five years
        - Moderate - 10-15 %
        - Low risk – < 10%
    - The risk assessment will guide intensity of cardiovascular risk management. There is no evidence that there is benefit in screening (using exercise stress tests or equivalent investigation) asymptomatic individuals with diabetes even though silent myocardial ischemia is much more common in people with diabetes.
- Other complications, for example, dental complications, mental health issues (notably cognition and depression)

Any active significant complications should be assessed and managed by a multidisciplinary team* **within 24 hours. This should preferably be done face to face or alternatively can be done via telehealth.**

*Refer to key definitions/criteria section (p.13)

Standard 2.3

From the time of diagnosis, people with diabetes and their carers should have access to structured diabetes self-management education and support, with access to an annual review and ongoing education and support. The education and support program should cover the following: [12, 16]

- Knowledge and understanding (includes application of knowledge)
- Self-determination (includes confidence, empowerment and capacity for decision making)
- Self-management (includes skills, practices and behaviours)
- Psychological adjustment (includes wellbeing and quality of life).

Standard 2.4

In addition to self-management education and support plus other measures, people with diabetes should be prescribed medication to help to achieve their individualised glycaemic target and to manage their personal risk factors. Prescribing should be in accordance with current National Health and Medical Research Council (NHMRC) guidelines[6] and the Australian Diabetes Society (ADS) guidelines.[17]

Standard 2.5

- Insulin therapy should be prescribed as required by a registered medical practitioner/registered nurse practitioner.
- Insulin therapy should be initiated and managed by an appropriately trained health care professional as part of the diabetes management plan. There should be on-going support for the person with diabetes and/or their carer to adjust insulin doses based on their monitoring of blood glucose.[12]

3. COMPLEX CARE* STANDARD – SECONDARY LEVEL CARE REQUIRED

Standard 3.1

- People with complex diabetes should receive secondary level care from the multi-disciplinary diabetes team. [12]
- People with diabetes should be encouraged where appropriate to self-monitor and manage their own insulin (with support from their carer as required). The registered medical practitioner should consider to what extent the individual has the willingness, capacity and self-management skills to do this. [12]
- Appropriate discharge planning should be an integral part of in-patient care by the multi-disciplinary team.

*Refer to key definitions/criteria section (p.13)

4. HIGHLY COMPLEX* CARE STANDARD – TERTIARY LEVEL CARE REQUIRED

Standard 4.1

- People with highly complex diabetes should receive tertiary level (specialist) care from the multi-disciplinary diabetes team*.

Standard 4.2

- People with diabetes who have experienced severe hypoglycaemia* should be assessed and managed by the multi-disciplinary diabetes team* within 24 hours. This should preferably be done face to face, or alternatively can be done via telehealth. [12]
- People with diabetes should be encouraged where appropriate to self-monitor and manage their own insulin (with support from their carer as required). The registered medical practitioner should consider to what extent the individual has the willingness, capacity and self-management skills to do this. [12]
- Appropriate discharge planning should be an integral part of in-patient care by the multi-disciplinary team.

Standard 4.3

- People admitted to hospital with diabetic ketoacidosis should be assessed and managed by the multi-disciplinary diabetes team*. As part of the individual's care, they should be encouraged to access educational and psychological support as required. [12]
- Appropriate discharge planning should be an integral part of in-patient care by the multi-disciplinary team.

*Refer to key definitions/criteria section (p.13)

5. STANDARDS OF CARE FOR CHILDREN AND ADOLESCENTS (i.e. UNDER THE AGE OF 18) WITH DIABETES

Standard 5.1

- Children and adolescents with diabetes should be provided with tertiary level care from diagnosis by a multidisciplinary diabetes team trained and experienced in paediatrics and adolescent care. [18, 19] The specialist multi-disciplinary team for children and adolescents should normally comprise:
    - Paediatric Endocrinologist
    - Diabetes Educator or Nurse Practitioner
    - Accredited Practising Dietitian
    - Mental health professional (Social Worker and/or Psychologist).
- Management of diabetes in children should be patient/family centred, with an emphasis on facilitating self-management. The focus changes from the parents for very young children to the child and adolescent depending on age and developmental stage. [18, 19]
- Services for children and adolescents should be delivered in facilities which are appropriate for their developmental stage [18, 19] (i.e. facilities which are either 'child friendly' or 'adolescent friendly').
- All children and adolescents should be able to have access to modern therapies, including pump therapy and continuous glucose monitoring, as appropriate. [18, 19]

Standard 5.2

- **Following diagnosis** there should be an intensive education and clinical stabilisation period during which the child/adolescent is seen frequently and therapy is defined. [18]
- Following this phase, routine clinical assessment and care should be provided at least **three monthly**. This includes HbA1c review, diabetes education revision, specific diabetes therapy adjustment and review, diet, lifestyle and physical activity, mental health review and complication screening. [18]

Standard 5.3

- Children and adolescents with diabetes and their carers should be offered **24 hour telephone access** to specialist advice from an appropriately trained health care professional to prevent and treat acute complications of diabetes. [18]

Standard 5.4

Transition to adult care should be made at a **developmentally appropriate age** and requires close liaison between the multidisciplinary paediatric diabetes team and adult diabetes services. [18]

- A plan should be developed for transition to adult services, with increasing responsibility being given to the individual (graduating to them seeing health professionals on their own).
- The plan should take into account the individual's risk factors and service provision should be tailored accordingly, with those individuals identified at high risk being offered the highest level of care.
- The individual and their carer should be encouraged to participate in the planning process.

6. STANDARDS OF CARE FOR WOMEN WITH DIABETES BEFORE, DURING AND AFTER PREGNANCY [20]

BEFORE PREGNANCY

Standard 6.1

Women of child-bearing age who are diagnosed with diabetes should be informed of the benefits of preconception glycaemic control and of any risks (including medication) to an unborn child. This should be done **at diagnosis** and as part of the **annual** assessment and care planning cycle thereafter (see Standard 2.1). Women with diabetes planning a pregnancy should be offered preconception care and those not planning a pregnancy should be offered advice on suitable contraception.

DURING PREGNANCY AND IN CHILD BIRTH - ANTE-NATAL AND INTRA-PARTUM DIABETES CARE

Standard 6.2

- Women at high risk of gestational diabetes mellitus (GDM)* should be screened (using the 75g oral glucose tolerance test (OGTT)) at the first opportunity after conception, **if this has not already been done previously**. If initial (early) testing is negative, then women at high risk of GDM should continue to be monitored closely and undergo repeat testing.
- Pregnant women at low risk of GDM should be screened at **24-28 weeks**. Note: the diagnosis of diabetes in pregnancy will include those women with previously undiagnosed abnormalities of glucose tolerance, as well as women with glucose abnormalities related to the pregnancy alone.

*Refer to key definitions/criteria section (p.13)

Standard 6.3

- Pregnant women with diabetes should be referred to a multidisciplinary team trained and experienced in diabetes and obstetric management and care. The team should normally comprise:
  - Specialist Obstetrician +/- GP Obstetrician
  - Obstetric Physician
  - Credentialled Diabetes Educator/Diabetes Educator
  - Nurse Practitioner
  - Clinical Midwifery Consultant / Clinical Midwives
  - Social Worker and Accredited Practising Dietitian.
- Women living in rural and remote areas may be offered specialised management and care through telehealth in association with their local medical officer (GP or obstetrician), with probable delivery at a tertiary centre.
- A management plan should be formulated in consultation with the woman with diabetes (and her partner/carer, if appropriate). Women requiring insulin or oral hypoglycaemic agents (OHAs) should have regular contact with the diabetes team for adjustment of medication.

Standard 6.4

- For women requiring insulin or OHAs, an elective birth should be arranged at **38-39 weeks** (or earlier if clinically indicated).
- Elective Caesarean Section should be considered if the estimated foetal weight >4250 g or the fetal abdominal circumference >40 mm more than head circumference.
- All women with GDM for induction of labour or Caesarean Section who are on insulin or OHAs should have the plan for their intrapartum and postpartum management discussed and documented during antenatal clinic visits at **34–36 weeks**.

AFTER PREGNANCY - POST-NATAL DIABETES CARE

Standard 6.5

On discharge from obstetric care:

- Women with type 1 and type 2 diabetes should be referred back to their usual diabetes services provider(s) for support with ongoing management which may, especially in the case of those with Type 1 diabetes, include the possible change in insulin requirements with breast feeding.
- Women with GDM should be referred back to their GP and offered advice reinforcing lifestyle changes necessary to prevent/delay the onset of future type 2 diabetes as per Standard 1.2(b).
- Women with GDM should be offered an OGTT **six-eight weeks** and **two years** post partum.

Appendix 1 - Resources for action on diabetes

The following resources are available to support organisations in the planning, purchasing and provision of diabetes services:

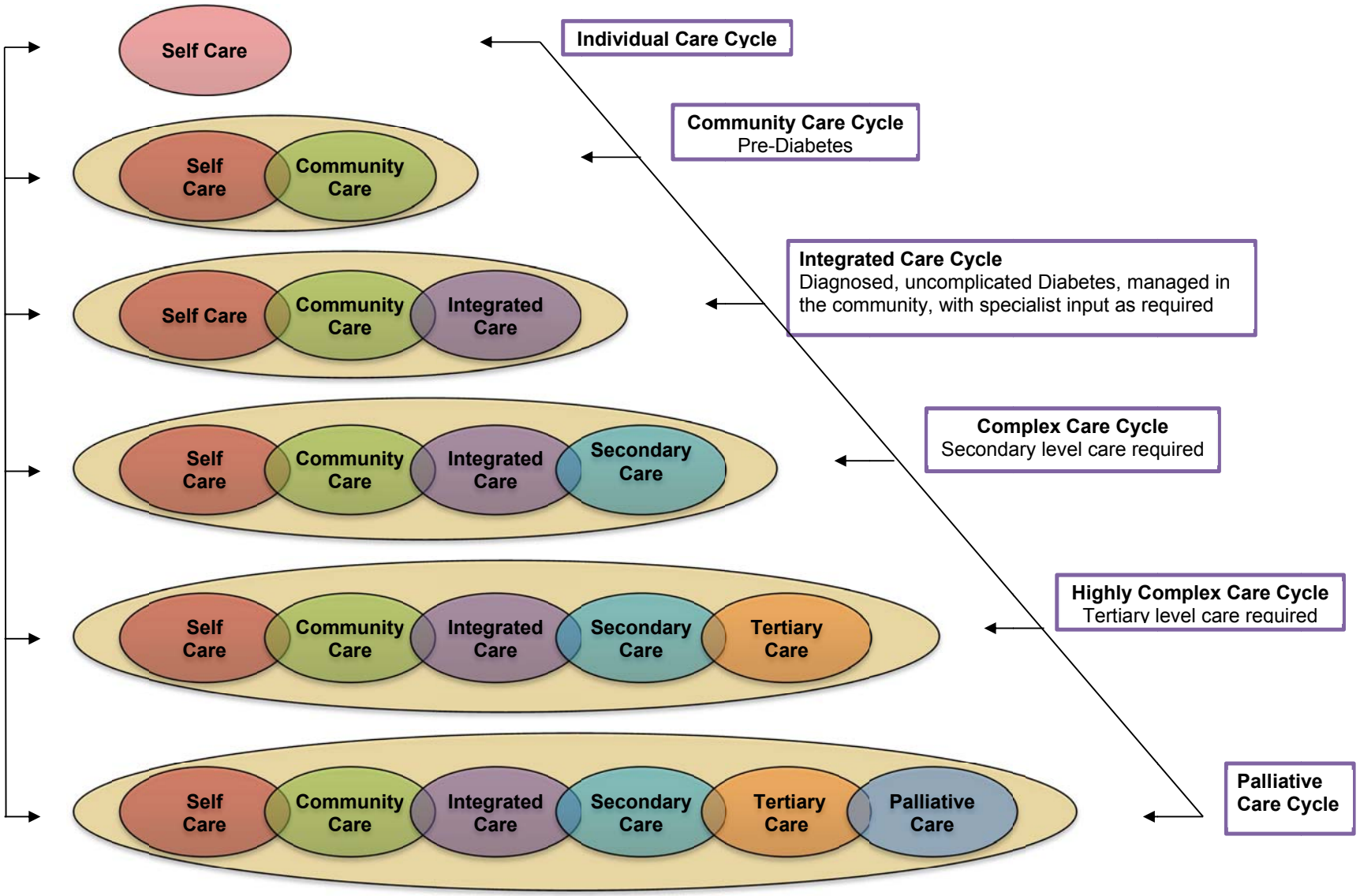
1. The **WA Diabetes Service Standards 2014** (**p.12**) broadly outline the level and quality of service that people at 'high' risk of or living with diabetes should expect to receive in WA by 2025. In addition to being a resource for consumers, carers and clinicians, the standards can be used by planners, purchasers and providers of diabetes services as a benchmark for evaluating current services and planning future service improvements.
2. **Foot Care for People with Diabetes: Western Australia Standards and Clinical Guidelines 2014**. This document defines the level of care which should be available to deal with one of the most significant complications of diabetes.
3. The **WA Diabetes Model of Care (2008)** [21] is summarised in Table 1 of this Appendix. The Model of Care sets out a framework for comprehensive, accessible and efficient provision of coordinated diabetes prevention and management services. The WA DEHN Executive Advisory Group confirmed in 2013 that this Model of Care remains relevant as a guide for planning diabetes services.
4. The **Cycles of Care Model (2013)** is illustrated in Figure 1 of this Appendix. This is consistent with the WA Diabetes Model of Care (2008) and has been used to structure the WA Diabetes Service Standards around the needs of people at all levels of the care continuum from the well population through to those with highly complex care needs.
5. **The WA Type 2 Diabetes in Children and Adolescents Model of Care and Clinical Practice Guideline (2009)** [22] is a complementary document to the Diabetes Model of Care (2008).
6. **The WA Model of Care for the High Risk Foot (2010)** [23] makes recommendations to prevent and/or delay complications of the high risk foot (which is commonly associated with diabetes) at all stages, especially amputations, and to deliver equitable and cost-effective high risk foot services particularly to rural and remote Aboriginal communities.
7. **The WA Health Promotion Strategic Framework 2012-2016** [24] sets out WA Health's strategic directions and priorities for the prevention of injury and avoidable chronic disease such as Type 2 diabetes. It focuses on facilitating improvements in health behaviours and environments (physical, economic, social and food) to support people to adopt healthy lifestyles.
8. **The WA Chronic Health Conditions Framework 2011-2016** [25] is an overarching guide to providing the right care at the right time by the right team in the right place for people with chronic (long term) conditions.
9. **The WA Health Clinical Services Framework 2010-2020** [26] sets out the planned structure of public health service provision in Western Australia over ten years. It is an important tool for strategic statewide planning and is designed to assist Area Health Services in developing localised clinical service plans.
10. **General Practice Management of Type 2 Diabetes 2014-15 – RACGP & Diabetes Australia**. [27] These guidelines support general practitioners (GPs) and their teams to provide high-quality management by providing up-to-date, evidence-based information tailored for general practice.

11. **Clinical Practice Guidelines for the Management of Overweight and Obesity in Adults, Adolescents and Children in Australia (2013)**. [28] These guidelines provide detailed evidence-based recommendations for assessing and managing overweight and obesity in adults, adolescents and children. It is intended for use by primary healthcare professionals including other professionals who have contact with people about managing overweight and obesity.
12. **WA Chronic Conditions Self-Management Strategic Framework 2011-2015**. [25] This document provides a focus for: supporting system and practice changes to incorporate self-management into the core principles of chronic condition management; targeting training for health care professionals to assist consumers with chronic conditions to actively self-manage their health; developing and implementing chronic conditions self-management programs and services for consumers with adaptations as required for people from culturally and linguistically diverse populations.

Table 1: Summary of the WA Diabetes Model of Care 2008[21] (modified)

COMMUNITY AWARENESS & PREVENTION	PREVENTION & EARLY DIAGNOSIS IN HIGH RISK GROUPS	OPTIMAL INITIAL & LONGTERM MANAGEMENT	EARLY DETECTION & OPTIMAL MANAGEMENT OF COMPLICATIONS	PREVENTION & MANAGEMENT OF ACUTE EPISODES	SUPPORT SERVICE COORDINATION
GENERAL POPULATION	**AT RISK OF DIABETES UNDIAGNOSED DIABETES**	**NEWLY DIAGNOSED DIABETES**	**ESTABLISHED COMPLICATIONS**	**ACUTE EPISODES**	
Health Promotion • Awareness of diabetes • Promotion of healthy lifestyle, supporting development of environments (social, physical, food and financial) that support healthy eating, active living and a healthy weight (WAHPSF 2012 – 2016)	• Awareness of risk • How to reduce risk • Importance of early diagnosis	• Importance of healthy weight, healthy eating, physical activity • Need for complications screening	• Awareness of complications • Need for early detection	• Awareness of potential acute changes	• WA guidelines • Decision aids • Local protocols • Local resource directories • Diabetes care groups
GP – Coordinated multidisciplinary prevention & management • Awareness • Promotion of healthy lifestyle	• Patient information • Risk assessment • Community based risk reduction activities: diet, exercise, weight loss	• Patient information • Initial assessment • Personal plan, targets for weight, exercise, BP, lipids, smoking cessation • Self-management education & support • Medication o glucose control o reduce CV risk • Regular complications screening • Specialist referral of complex, difficult cases	• Regular complications screening & monitoring • Intensified diabetes treatment o Behavioural change o Glucose o Lipids o BP smoking • Specialist referral	• Patient information, action plan for acute problems • Local management o Protocols for GP care o Specialist team advice o Accessible general & specialist podiatry	• Care plans • Commonwealth quality initiatives
Targeted programs for high risk, vulnerable groups	• Targeted diabetes detection programs	• Targeted services for high risk groups	• Targeted complications screening & management for high risk groups		
Specialist team services		• Type 1 care • Assessment of complex cases, intensified treatment • Complications screening • Insulin stabilisation • Paediatric service • Pregnancy services • Outreach services • Service planning, coordination • Research	• Complications screening & monitoring • Intensified diabetes treatment, cardiovascular risk reduction	• Accessible advice • Clinical review • Inpatient diabetes management • Management of advanced complications • Outreach services	• Care plans • Commonwealth quality initiatives • ICT data sharing, communication & resources • Local & statewide registers • Recall systems • Audit

Figure 1: Cycles of Care Model (unpublished) This has been used to structure the WA Diabetes Service Standards around the needs of people at different levels of the care continuum from the well population (individual care cycle) through to those with highly complex and palliative care needs.



Appendix 2 - Type 2 diabetes goals for optimum management

Type 2 diabetes: goals for optimum management [27] (modified)	
Diet	Normal healthy eating. If concerns regarding cardiovascular risk, advise Mediterranean diet.
Body mass index (kg/m^2)	Therapeutic goal is 5–10% loss for people overweight or obese with type 2 diabetes. With BMI >35 and comorbidities or BMI >40, greater weight loss measures should be considered. Note that BMI is a difficult parameter to standardise between different population groups. **Race-specific waist circumference reference ranges are available and can be used as additional goals.**
Physical activity	At least 30 minutes of moderate physical activity on most if not all days of the week (total ≥150 minutes/week).
Cigarette consumption	0 (per day)
Alcohol consumption	≤2 standard drinks (20 g) per day for men and women.
BGL	6–8 mmol/L fasting and 8–10 mmol/L postprandial. Ongoing self-monitoring of blood glucose is recommended for people with diabetes using insulin, with hyperglycaemia arising from illness, with haemoglobinopathies, pregnancy or other conditions where data on glycaemic patterns is required. Routine self-monitoring of blood glucose in low-risk patients who are using oral glucose-lowering drugs (with the exception of sulphonylureas) is not recommended. **For pregnant women, the King Edward Memorial Hospital recommendations are:** **Fasting <5.5 mmol/L** **2 hour post prandial <7.0 mmol/L**
HbA1c (mmol/mol; %)	Needs individualisation according to patient circumstances. Generally: • ≤53 mmol/mol (range 48–58) • ≤7% (range 6.5–7.5). Allowing for normal variation in test accuracy, HbA1c results which range between 6.5 and 7.5% would reflect this goal.
Total cholesterol (mmol/L) <4.0	
HDL-C (mmol/L) ≥1.0	Initiation of pharmacotherapy is dependent on the assessment of absolute cardiovascular risk (Australian absolute CVD risk calculator). This requires using multiple risk factors, which is considered more accurate than the use of individual parameters. Once therapy is initiated the specified targets apply; however, these targets should be used as a guide to treatment and not as a mandatory target.
LDL-C (mmol/L) <2.0	
Non-HDL-C (mmol/L) <2.5	
Triglycerides (mmol/L) <2.0	
BP (mmHg) 130/80	

Continues next page…

Urinary albumin excretion	Timed overnight collection (mcg/min): <20 Spot collection (mg/L): <20 Urinary albumin-to-creatinine ratio • Women (mg/mmol): <3.5 • Men (mg/mmol): <2.5
Vaccination	Consider immunisation against influenza and pneumococcal disease, and the dTPa

Note: the above goals apply primarily to adults with diabetes.

Appendix 3 - Acknowledgements

We are grateful to members of the WA Diabetes Statewide Working Group and the WA Diabetes and Endocrine Health Network Executive Advisory Group and others who contributed to the development of the WA Framework for Action on Diabetes and Diabetes Service Standards 2014:

- Dr Alan Wright
- Mr Andrew Wagstaff
- Dr Anupam Chauhan
- Ms Belinda Whitworth
- Mr Bruce Campbell
- Ms Cara Westphal
- Dr Chhaya Mehrotra
- Ms Deborah Schofield
- Ms Denise Smith
- Ms Elizabeth Rohwedder
- Ms Genevieve Stone
- Dr Gerry Fegan
- Ms Helen Mitchell
- Mr Jason Chua
- Ms Lisa Evans
- Ms Maria Orifici
- Mr Mark Slattery
- Ms Melanie Robinson
- Ms Merinda March
- Ms Nancy Pierce
- Ms Rachel Gregson
- Ms Rachele Humbert
- Dr Rhonda Clifford
- Prof Richard Prince
- Dr Scott Westover
- Dr Sean George
- Dr Seng Khee Gan
- Ms Sophie McGough
- Ms Sue Lievers
- Ms Teresa di Franco
- Mr Tim Benson
- Prof Tim Davis
- Prof Tim Jones

A full list of organisations consulted can be produced upon request.

References

1. Baker IDI Heart and Diabetes Institute. Diabetes: the silent pandemic and its impact on Australia; 2012.
2. KPMG. Diabetes in Western Australia: prevalence and services in 2012; 2013.
3. Diabetes Australia. A national diabetes strategy and action plan; 2013.
4. Prevention. International Diabetes Federation, 2014. (Accessed 28 October, 2014, at http://www.idf.org/prevention.)
5. Department of Health WA. Integrated diabetes service model. Perth: WA Country Health Service, Department of Health, Western Australia; 2014.
6. Diabetes Australia. Diabetes management in general practice: guidelines for type 2 diabetes; 2012.
7. Azzopardi P, Brown AD, Zimmet P, Fahy RE, Dent GA. Type 2 diabetes in young Indigenous Australians in rural and remote areas: diagnosis, screening, management and prevention. Medical Journal of Australia 2012;197(1):32-6.
8. Patient and consumer centred care. Australian Commission of Safety and Quality in Health Care, 2014. (Accessed 13 August, 2014, at http://www.safetyandquality.gov.au/our-work/patient-and-consumer-centred-care/.)
9. Shrivastava SRS, P. S., Ramasamy J. Role of self-care in management of diabetes mellitus. Journal of Diabetes & Metabolic Disorders 2013;12(14).
10. Australian type 2 diabetes risk assessment tool (AUSDRISK). Department of Health, 2014. (Accessed 28 August, 2014, at http://www.health.gov.au/preventionoftype2diabetes.)
11. American Diabetes Association. Standards of medical care in diabetes - 2013. Diabetes Care 2013;36:S11 - S66.
12. Oldroyd J. National Institute for Health and Care Excellence (NICE) quality standards for adults with diabetes. In; 2011.
13. National Health and Medical Research Council (NHMRC). National evidence-based guideline: prevention, identification and management of foot complications in diabetes. Melbourne: Commonwealth of Australia; 2011.
14. Diabetes Australia. A national diabetes strategy and action plan. Diabetes Australia; 2013.
15. Colagiuri R, Girgis S, Gomez M, Walker K, Colagiuri S, O'Dea K. National evidence based guideline for the primary prevention of type 2 diabetes Canberra: Diabetes Australia and the National Health and Medical Resesarch Council (NHMRC); 2009.
16. National Health and Medical Research Council (NHMRC). National Evidence Based Guideline for Patient Education in type 2 Diabetes. 2009.
17. Australian Diabetes Society (ADS). Draft australian blood glucose treatment algorithm; 2014.
18. Craig ME, Twigg SM, Donaghue KC, Cheung NW, Cameron FJ, Conn J, et al. National evidence-based clinical care guidelines for type 1 diabetes in children, adolescents and adults. Canberra: Australian Government Department of Health and Ageing; 2011.
19. Department of Health. National service framework for diabetes: standards. London; 2001.
20. King Edward Memorial Hospital. Clinical guidelines section B: guidelines for obstetrics and midwifery, diabetes in pregnancy. Perth: Women and Newborn Health Service, Department of Health, Western Australia; 2012.
21. Department of Health WA. Diabetes model of care. Perth: Health Networks Branch, Department of Health, Western Australia; 2008.
22. Department of Health WA. Type 2 diabetes in children and adolescents model of care and clinical practice guideline. Perth: Princess Margaret Hospital and Health Networks Branch, Department of Health, Western Australia; 2009.

23. Department of Health WA. High risk foot model of care. Perth: Health Networks Branch, Department of Health, Western Australia; 2010.
24. Department of Health WA. WA health promotion strategic framework 2012-2016. Perth: Chronic Disease Prevention Directorate, Department of Health, Western Australia; 2012.
25. Department of Health WA. WA chronic conditions self-management strategic framework. Perth: Health Networks Branch, Department of Health, Western Australia; 2011.
26. Department of Health WA. WA health clinical services framework 2010-2020. Perth: Health System Improvement Unit, Department of Health, Western Australia; 2009.
27. Royal Australian College of General Practitioners, Diabetes Australia. General practice management of type 2 diabetes - 2014-15. Melbourne: Royal Australian College of General Practitioners; 2014.
28. National Health and Medical Research Council (NHMRC). Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia. Melbourne: National Health and Medical Research Council; 2013.

This document can be made available in alternative formats on request for a person with a disability.