

40TH PARLIAMENT



Education and Health Standing Committee

Report 6

THE FOOD FIX

*The role of diet in type 2 diabetes prevention and management*

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Presented by  
Ms J.M. Freeman, MLA

April 2019

## *Committee Members*

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Chair	Ms J.M. Freeman, MLA Member for Mirrabooka
Deputy Chair	Mr W.R. Marmion, MLA Member for Nedlands
Members	Ms J. Farrer, MLA Member for Kimberley
	Mr R.S. Love, MLA Member for Moore
	Ms S.E. Winton, MLA Member for Wanneroo

## *Committee Staff*

---

Principal Research Officer	Dr Sarah Palmer
Research Officer	Ms Jovita Hogan

Legislative Assembly  
Parliament House  
4 Harvest Terrace  
WEST PERTH WA 6005

Tel: (08) 9222 7494

Email: [laehsc@parliament.wa.gov.au](mailto:laehsc@parliament.wa.gov.au)  
Website: [www.parliament.wa.gov.au/ehsc](http://www.parliament.wa.gov.au/ehsc)

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# Education and Health Standing Committee

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## The Food Fix

The role of diet in type 2 diabetes prevention and management

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Report No. 6

Presented by

**Ms J.M. Freeman, MLA**

Laid on the Table of the Legislative Assembly on 11 April 2019



## Chair's Foreword

If there is one thing to take away from this report it is that type 2 diabetes can go into remission and it need not be a life-long progressive chronic illness. Some practitioners argue it is reversible.

The evidence is clear that weight loss of 10 to 15 per cent, particularly around the abdomen, can lead to a type 2 sufferer no longer requiring medication, especially if it is early in the diagnosis. This can occur through surgery but less invasive remedies, through diet, are also available.

With between 4 and 5 per cent of the WA population suffering from type 2 diabetes and a new diagnosis made every hour, this systemic community-wide disease of impaired glucose tolerance cannot be dismissed as an individual problem.

Disturbingly, this report reveals that there is a silent pandemic of adverse health effects for a growing segment of the community, representing an expanding cost to our State that demands urgent attention.

The Committee has calculated the annual cost of type 2 diabetes to be \$1 billion, around 3 per cent of our State budget, an expense amplified by the individual and broader economic burden of the disease.

Focusing treatment of the disease away from *'living with it'* to *'beating it'* should be a priority of our health system. Replacing *'you need to lose weight'* with *'here is how you can'* and *'this is how we can help'* is not simply beneficial for the individual but should be a population-wide policy.

In this State we are all familiar with researchers that push the boundaries and often challenge the norms (such as Professor Barry Marshall with his discovery on the treatment of stomach ulcers).

This report challenges the norms of 'business as usual' and inappropriate guidelines. The existing medical practice of 'screen and prescribe' is no longer suitable from a personal health point of view, as a community health response, and in a health system that competes for scarce resources.

The saint and philosopher Augustine said 'I should learn to take food as medicine'; however, too much food and lack of nutritional content can create harm. Our bodies stockpile the calories we don't use in fat cells in our vital organs. Unfortunately, when organs such as the liver reach capacity, a metabolic switch is triggered and our health is impacted.

However, far from being a simple issue of restraint, or not enough 'energy out to energy in', food has become over-processed and is marketed in a manner that aims not simply to satisfy our hunger, but to create social sustenance, deliver a reward, or placate a

craving. Dr Michael Mosley points out in his publications that many unhealthy foods are formulated to be craved through the ratio of 1 fat to 2 carbs, the same ratio as breast milk. Further historical evidence illustrates how industries manipulated dietary guidelines to focus on saturated fat as being the major health risk, shifting the blame from sugar. In addition the food industry has been criticised for blaming obesity on 'lack of exercise' without reflecting on its contribution to the epidemic.

Certainly, the UK Government's response in introducing a sugar tax on soft drink shifted responsibility back to the provider. While imposing such a levy is not within the State's powers, we need to learn from the UK experience that a focus on unhealthy products has led to reformulation of soft drinks to be less harmful. It has also given leverage to policy makers to push for changes in other high sugar products such as breakfast cereals. The State Government should accordingly use its leverage points to tackle the promotion and availability of unhealthy food in our community.

Diet comes from the Greek word 'diata' meaning way of life, and as our way of life continues to be influenced by the availability of food, we need to encourage people to focus on what and how much should be eaten to ensure a healthy future, not simply telling them what they cannot consume.

This is the message from UK low carbohydrate diet advocate, Dr David Unwin: not one of deprivation but one of replacement, rebalancing and flourishing through food choices that ensure blood sugar levels remain stable, putting consumers in control.

This report also highlights the serious health consequences of type 2 diabetes on Aboriginal people who are three times more likely to develop the illness and who deserve the opportunity to design resources to implement their own responses in fighting the disease.

*The Food Fix* is presented to the Parliament as a pathway to tackle the silent pandemic that is type 2 diabetes with a focus on how the knowledge around diet and weight loss can be applied to address both the human and the economic cost.

I would like to thank my fellow Committee members, the Deputy Chair Hon Bill Marmion MLA, Ms Josie Farrer MLA, Mr Shane Love MLA, Ms Sabine Winton MLA for their active participation and contribution to this report. I would also like to thank the Committee's principal research officer Sarah Palmer and research officer Jovita Hogan for their assistance throughout this inquiry.



MS J.M. FREEMAN, MLA  
CHAIR

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## Executive Summary

**T**YPE 2 diabetes is the fastest growing chronic condition in Australia, affecting around 1.1 million people. In Western Australia, more than 100,000 people have been diagnosed with the disease and thousands are suffering from it without a formal diagnosis. An estimated 10 per cent of Western Australia's health budget – around \$1 billion – is spent on dealing with the consequences of type 2 diabetes. However, the Department of Health was unable to provide an accurate cost figure. There is also insufficient data to accurately identify how many West Australians are currently suffering with type 2 diabetes.

The complications of poorly managed diabetes, which include cardiovascular disease, kidney failure, limb amputation, erectile dysfunction and blindness, represent a significant cost to the public health system. This could be avoided if systemic, community-wide changes to type 2 diabetes management and prevention were implemented.

One of the key risk factors for developing type 2 diabetes is being overweight or obese. Studies conducted over the past decade have investigated the impact of weight loss on blood glucose levels, with many showing that dietary changes that result in 10 to 15 per cent weight loss can put type 2 diabetes into remission. This means the patient no longer requires medication and will avoid the prospect of hospitalisation from associated complications.

This inquiry considered whether dietary interventions to encourage weight loss would be a feasible approach for management of type 2 diabetes, as well as how best to encourage healthy eating habits to help prevent future cases of type 2 diabetes.

At present, the Department of Health refers people to the non-government diabetes support organisation Diabetes WA for advice on diet. But this inquiry has revealed that Diabetes WA's advice – to follow the Australian Dietary Guidelines – is at odds with the Department's view that the guidelines are not suitable for people with type 2 diabetes.

Healthcare professionals, particularly dietitians, are deeply divided on dietary recommendations for type 2 diabetes, and the Department of Health does not provide adequate direction. The United Kingdom's public health system is more open to advances in this area, supporting the exploration of alternatives to pharmacotherapy that may then form part of official guidelines and government programs.

The Committee looked to the example of the UK government and Diabetes UK in supporting a trial of a very low calorie diet to put type 2 diabetes into remission. The trial follows the discovery by Professor Roy Taylor (Newcastle University) that loss of fat from the liver and pancreas is the key to putting type 2 diabetes into remission. A fast way to do this is by using meal replacements. The Committee recommends that the State Government monitors the outcomes of a subsidised meal replacement program being offered through the UK National Health Service for patients at risk of type 2 diabetes.

A low carbohydrate diet has also been shown to put type 2 diabetes into remission, but this approach is not endorsed in Australia and health professionals have been sanctioned for recommending it to patients. However, the CSIRO has recommended a low carbohydrate

diet. Some GPs and patients in WA have been guided by UK GP David Unwin, who has produced resources to assist patients, while others may have sought guidance from internet sources of variable quality. Dr Unwin's practice in England has saved its public health system thousands of pounds in diabetes drug prescriptions. The Committee recommends that the Department of Health investigate how a low carbohydrate program developed by the CSIRO can be made readily available to WA doctors as part of the treatment guidelines for people with pre-diabetes and type 2 diabetes.

Another effective method of weight loss which puts type 2 diabetes into remission is bariatric (weight loss) surgery. While this is considered an expensive option, studies show that the cost of the surgery is recouped in one to two years, based on savings to the public health system from not having to treat someone with type 2 diabetes. However, most surgery is performed in the private system, and those who may benefit the most are least able to afford it. The Committee recommends that a greater proportion of bariatric surgery procedures be performed in the public health system to ensure equity of access and high standards of care.

The inquiry also investigated the value of structured self-management education, which is the approach favoured by key diabetes organisations such as Diabetes WA. This approach is premised on giving people the information and skills to manage their diabetes better, but does not promote any particular diet. Again, this model was developed in the UK where studies have shown it to be effective. The programs are low cost and have the potential to deliver savings to the tertiary health sector, but at present access is not widespread.

There are regulatory measures the State could impose to assist people to eat more healthily, including removing junk food advertising from its assets, menu labelling and planning laws which make health and wellbeing a relevant consideration in fast food restaurant planning applications. In addition to this, people and food manufacturers can also be 'nudged' to behave better. People can be encouraged to make repeated marginal changes which can lead to wider changes in the food system, such as reformulation of products (to make them healthier) by food manufacturers.

Understanding the social and cultural factors that underlie unhealthy eating habits and attitudes to diabetes management is critical in tackling the disease. Factors such as a person's attitude to health services, view of nourishment, perception of a desirable body size, and cultural attitudes to food will determine the best approach. The international Cities Changing Diabetes program has developed tools for cities to identify those for whom clinical medicine is not working, to understand their needs and to understand how to reach them. Cities Changing Diabetes can assist city and health leaders to create their own action plan for tackling diabetes, but it has no presence in Australia. The Committee recommends that the State Government and local authorities use the tools or consider joining the program.

Another key factor in the success of prevention programs – particularly where a dietary change is being implemented – is regular professional support or coaching, but access to dietitians and diabetes educators is limited by the very fact that there has not yet been a type 2 diabetes diagnosis.

Access to diabetes care is more problematic in regional areas, and some of these areas have the greatest need. People in the Kimberley are 2.8 times more likely to be hospitalised for diabetes and impaired glucose regulation than people across the whole State, and 5.6 times more likely to die from it. The potential of telehealth services to address poor access to health professionals in rural and regional areas has not been fully realised.

Groups that are more susceptible to type 2 diabetes are poorly catered for. Very few programs target Aboriginal groups, migrant populations and susceptible ethnic groups, the socioeconomically disadvantaged and women who have had gestational diabetes. Half of all women who have had gestational diabetes will go on to develop type 2 diabetes, but there is no follow-up once the gestational diabetes has receded.

The State Government is currently introducing the new *Public Health Act 2016*, a major reform to public health in the State which will require local governments to implement preventative health programs. UK local government authorities such as Leicester City Council and Newcastle City Council can offer examples of health initiatives to promote healthy eating, tackle obesity and engage populations susceptible to type 2 diabetes, which local governments here may wish to consider.

Failure to consider type 2 diabetes as a priority within the health system will lead to higher future health costs as prevalence grows and complications requiring hospital treatment increase. The State Government must properly consider the cost-benefits of implementing a suite of prevention and management strategies, which would include:

- delivery of dietary intervention programs to put type 2 diabetes into remission
- publicly funded bariatric surgery for patients with type 2 diabetes who stand to benefit the most metabolically
- group self-management programs
- regulatory measures.

## **Ministerial Response**

In accordance with Standing Order 277(1) of the Standing Orders of the Legislative Assembly, the Education and Health Standing Committee directs that the Premier, the Treasurer, the Minister for Health and the Minister for Housing report to the Assembly as to the action, if any, proposed to be taken by the Government with respect to the recommendations of the Committee.

# Findings and Recommendations

## Finding 1

Page 9

There is insufficient data to clearly identify how many West Australians are currently suffering with type 2 diabetes and to predict the increase in incidence of the disease.

## Recommendation 1

Page 9

The Department of Health should ensure that it collects accurate data showing the incidence of type 2 diabetes in all sectors of the West Australian population.

## Finding 2

Page 21

Western Australian and Australian bodies which advise patients on managing type 2 diabetes have not endorsed a very low calorie diet as a management option, despite international evidence and acknowledgement of its success in lowering blood glucose levels.

## Finding 3

Page 25

Western Australian and Australian bodies which advise patients on managing type 2 diabetes have not officially endorsed a low carbohydrate diet as a management option, despite considerable evidence from the United Kingdom in particular that it can lower blood glucose levels.

## Finding 4

Page 26

The Department of Health and Diabetes WA are not aligned in regard to the suitability of the Australian Dietary Guidelines for type 2 diabetics.

## Recommendation 2

Page 26

The Department of Health and Diabetes WA should consult with one another to ensure they are providing consistent advice in regard to the Australian Dietary Guidelines. Diabetes WA should align with the Department of Health position that the Australian Dietary Guidelines are not suitable for people with type 2 diabetes.

## Finding 5

Page 28

There is convincing evidence to support the use of dietary interventions such as the very low calorie diet and the low carbohydrate diet in the treatment of people with type 2 diabetes.

## Recommendation 3

Page 28

The Department of Health ensure that guidelines for the management of type 2 diabetes reflect the success of dietary interventions – such as the very low calorie diet and the low carbohydrate diet – in treating the disease. These approaches should be formally offered as management options.

## Recommendation 4

Page 29

The Department of Health commence a campaign to ensure that healthcare professionals, and general practitioners in particular, are aware of the alternative (dietary) approaches for treating type 2 diabetes.

**Finding 6** **Page 35**

Bariatric surgery is an effective method of treating type 2 diabetes, often to remission, but limited access in the public health system means people who might benefit the most miss out, or are forced to draw on their savings to fund it privately.

**Finding 7** **Page 39**

Self-management education programs for people with type 2 diabetes (such as DESMOND) appear to be a useful method of improving management and potentially reducing dependence on pharmacotherapy.

**Recommendation 5** **Page 39**

Self-management education programs be offered to everyone with type 2 diabetes, in line with the Framework for Action on Diabetes and Diabetes Service Standards 2014. Programs should be evaluated at least every two years to ensure that they meet quality assurance criteria and are sustainable.

**Recommendation 6** **Page 49**

The State Government task the Department of Primary Industry and Regional Development to work with other government agencies, such as the Department of Planning, Lands and Heritage, to identify and overcome obstacles to remote communities developing fresh food sources for personal and commercial purposes.

**Recommendation 7** **Page 49**

The Department of Housing consult with Aboriginal people in remote communities to ensure that the housing provided is appropriate for their lifestyle.

**Finding 8** **Page 52**

There is convincing evidence that dietary interventions, including liquid meal replacements, can delay or prevent the development of type 2 diabetes in people who have pre-diabetes when they are adhered to.

**Finding 9** **Page 52**

There is evidence from the United Kingdom that education and behaviour change programs, such as *Let's Prevent*, can delay or prevent the development of type 2 diabetes in people who have pre-diabetes.

**Recommendation 8** **Page 53**

The Department of Health should review the evidence from abroad that a lower carbohydrate diet is beneficial to women with gestational diabetes, and consider revising its healthy eating advice for gestational diabetes.

**Finding 10** **Page 56**

Public health programs aimed at losing weight to prevent chronic diseases are most effective when ongoing professional support or coaching is provided.



**Finding 11** **Page 57**

Campaigns promoting healthy eating help to create awareness but can only be regarded as one part of the solution to the obesity problem.

**Finding 12** **Page 57**

The United Kingdom has found that the imposition of a soft drinks industry levy has led to manufacturers reformulating their products to contain less sugar.

**Recommendation 9** **Page 59**

The State Government regulates to restrict unhealthy food marketing in settings solely within its control.

**Recommendation 10** **Page 59**

The State Government implements kilojoule menu labelling to assist consumers to make healthier choices in fast food settings, in a manner that is meaningful for consumers.

**Recommendation 11** **Page 60**

The State Government extends the Healthy Options WA policy to all government-funded settings.

**Recommendation 12** **Page 62**

The State Government amends the *Planning and Development Act 2005* to enable health and wellbeing to be a relevant consideration in fast food restaurant planning applications.

**Finding 13** **Page 64**

Helping people to choose a few healthier options, rather than expecting people to embrace all of the healthiest options, is a realistic approach to public health as it takes into account the way people actually behave.

**Recommendation 13** **Page 64**

The Department of Health investigates nudging strategies to shift the shopping habits of consumers to promote healthy food and drink choices, and promote that with WA food retailers.

**Finding 14** **Page 66**

GPs are not comfortable broaching the topic of a patient's weight and may not have the tools to assist them in providing advice on an appropriate diet.

**Recommendation 14** **Page 66**

The Department of Health and the WA Primary Health Alliance should work with the medical profession to ensure that GPs' knowledge of nutrition is adequate and that they feel confident discussing weight issues with patients.

**Finding 15** **Page 73**

Type 2 diabetes prevention is dependent on understanding the social, cultural and environmental factors, particular to a city and its communities, that underlie the development of the disease.

**Recommendation 15** **Page 73**

The State Government and/or local government authorities use the tools offered by Cities Changing Diabetes to help understand vulnerable populations, or consider joining the program.

**Recommendation 16** **Page 73**

The State Government consider funding a WA Local Government to participate in the Cities Changing Diabetes program.

**Finding 16** **Page 79**

There is no State-based strategy specifically targeting type 2 diabetes and pre-diabetes, and there has been limited progress in implementing the aims of the national strategy.

**Finding 17** **Page 79**

Progress on improving the management and reducing the incidence of type 2 diabetes is not measured as part of the Department of Health's annual reporting key performance indicators.

**Recommendation 17** **Page 79**

The Department of Health create a key performance indicator (or indicators), to be included in its annual report, which provides some measure of progress towards managing type 2 diabetes and reducing its prevalence.

**Finding 18** **Page 85**

Access to dietitians and diabetes educators is limited, particularly for people who have not yet had a formal type 2 diabetes diagnosis and cannot access public health system services.

**Finding 19** **Page 85**

The five allied health appointments available annually under Medicare Chronic Disease Management plans are insufficient to address the dietetic needs of people with type 2 diabetes.

**Finding 20** **Page 85**

Type 2 diabetes management programs and community-based nutrition and healthy lifestyle programs are sometimes not accessed because general practitioners are not aware of what is available.

**Finding 21** **Page 86**

There are concerns that a lack of coordination of community-based healthy lifestyle programs could lead to duplication of services, and that there is insufficient evaluation of the programs being provided.

**Recommendation 18** **Page 86**

The State Government lobby the Federal Government through the appropriate forum to increase the number of dietetic consultations offered under the Medicare Chronic Disease Management scheme.

**Recommendation 19** **Page 86**

The Department of Health and the WA Primary Health Alliance increase measures to improve general practitioner awareness of nutrition and healthy lifestyle programs – many of which are State Government-funded.

**Recommendation 20** **Page 86**

The Department of Health ensure that healthy lifestyle programs it funds are monitored and evaluated.

**Recommendation 21** **Page 90**

A focus on delivering primary care and allied health services to meet the needs of patients with (or at risk of) type 2 diabetes is required in remote regions, and should be a focus of any future funding agreements between the Commonwealth and State.

**Finding 22** **Page 91**

The potential of telehealth services to address poor access to health professionals in rural and regional areas has not been fully realised.

**Recommendation 22** **Page 97**

Type 2 diabetes management and prevention for Aboriginal communities should be community led and Aboriginal community health workers resourced to ensure the delivery of culturally appropriate care.

**Finding 23** **Page 101**

There is a need for more awareness and dietary education services targeting migrants and ethnic minorities at high risk of developing type 2 diabetes.

**Finding 24** **Page 104**

More and more women are developing gestational diabetes but there are few programs aimed at gestational diabetes prevention or prevention of type 2 diabetes following gestational diabetes.

**Recommendation 23** **Page 104**

The Department of Health invest in programs aimed at reducing the prevalence of gestational diabetes and the number of women who develop type 2 diabetes as a result of having had gestational diabetes. Online programs should be investigated.

**Finding 25** **Page 106**

There are no programs specifically targeting type 2 diabetes prevention and management for people who are socioeconomically disadvantaged

**Recommendation 24** **Page 106**

The Department of Health invest in ways to engage people from socioeconomically disadvantaged communities in type 2 diabetes prevention programs, focusing on diet.

**Recommendation 25** **Page 108**

The Department of Health liaise with the Department of Local Government, Sport and Cultural Industries regarding changes to the *Local Government Act 1995*, which would empower local governments to enable restrictions on unhealthy food and beverages in their facilities and on advertising materials.

**Finding 26** **Page 109**

A whole community, multi-faceted effort coordinated by local government is required to address healthy eating, including the leveraging of well-respected high profile sporting organisations, businesses and local facilities to increase the health of local areas.

**Finding 27** **Page 110**

Through participation in Cities Changing Diabetes, Leicester City Council has a defined framework in which to operate to address diabetes in its public health planning.

**Finding 28** **Page 111**

The *Public Health Act 2016* is a major public health reform that will require local governments to understand the health priorities of their communities and put in place programs to respond to them. However, resources for local governments to implement the reforms are lacking, particularly for those that are smaller.

**Recommendation 26** **Page 111**

The State Government provide more support to the local government sector to assist in the development of wellbeing indicators and an outcomes measurement framework.

**Recommendation 27** **Page 111**

The State Government assist the local government sector to implement the requirements of the *Public Health Act 2016*.

**Recommendation 28** **Page 111**

The Department of Health invest in the development of health and wellbeing officers that will be required to meet the workforce demands in the implementation of the public health plans.

**Finding 29** **Page 114**

Pharmacies are well-placed to provide support to consumers purchasing liquid meal replacement products, but the level of support provided is variable.

**Finding 30** **Page 114**

The cost-effectiveness of pharmacies providing screening for type 2 diabetes has not been determined.

**Recommendation 29** **Page 114**

The Department of Health investigate how pharmacies can play a greater role in type 2 diabetes and pre-diabetes management, to assist people in the early stages of diagnosis.

**Finding 31** **Page 118**

It is estimated that type 2 diabetes costs the public health system around \$1 billion per year, which is approximately 10 per cent of the State health budget. The data provided were inadequate to validate this estimate, however various analyses reach a similar estimated proportion.

**Finding 32** **Page 118**

Complications associated with type 2 diabetes place a significant burden on the tertiary care sector.

**Finding 33** **Page 118**

Type 2 diabetes has as many, if not more, indirect costs to the economy in lost time and welfare payments as it does direct costs to the health system, in addition to the burden on the individual.

**Recommendation 30** **Page 118**

The Department of Health must collect data that can provide an accurate indication of the cost of type 2 diabetes to the public health system.

**Recommendation 31** **Page 118**

The Department of Treasury produce an economic model of the impact of type 2 diabetes on productivity and labour force participation in WA, with a view to savings that could be achieved through implementing prevention and management programs.

**Page 118****Recommendation 32**

The Department of Health implement prevention and management programs to reduce the incidence of type 2 diabetes complications, reducing the cost to the WA Health system.

**Finding 34** **Page 122**

While the cost-effectiveness of treating type 2 diabetes with a subsidised low calorie diet using meal replacements is yet to be finalised, initial success in the treatment has led the UK's National Health Service to trial meal replacements as part of its Diabetes Prevention Programme.

**Finding 35** **Page 123**

Costs associated with following a low carbohydrate diet as a way of managing blood glucose levels is mostly associated with practitioner supervision of the patient.

**Recommendation 33** **Page 123**

The Department of Health investigate how the low carbohydrate program developed by the CSIRO can be made readily available to WA doctors as part of the treatment guidelines for people with pre-diabetes and type 2 diabetes.

**Recommendation 34****Page 123**

The Department of Health monitor the UK National Health Service trial of subsidised meal replacements as part of type 2 diabetes prevention, and report back to the Parliament on how the State Government can facilitate a similar program, either through the Commonwealth or through local government public health plans.

**Finding 36****Page 125**

Bariatric surgery is a cost-effective treatment for people with type 2 diabetes.

**Finding 37****Page 125**

Public health patients face a long wait time for bariatric surgery. It is currently five years.

**Recommendation 35****Page 125**

A greater proportion of bariatric procedures be performed in the public health system so that those with the greatest metabolic need can be treated, affording equity of access to all.

**Finding 38****Page 128**

Education self-management programs deliver potentially significant savings in tertiary care for a small investment.

**Finding 39****Page 130**

Failure to consider type 2 diabetes as a priority within the health system has led to higher health costs as prevalence grows and complications requiring hospital treatment increase. Continued inaction will lead to even higher costs in the future.

**Recommendation 36****Page 130**

The State Government treats type 2 diabetes as a health priority and properly considers the cost-benefits of implementing a suite of prevention and management strategies, which would include:

- delivery of dietary intervention programs to put type 2 diabetes into remission
- publicly funded bariatric surgery for patients with type 2 diabetes who stand to benefit the most metabolically
- group self-management programs
- regulatory measures.

# Chapter 1

## Type 2 diabetes: what is it, who has it and what should we do about it?

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*By 2023, type 2 diabetes is projected to become the leading cause of disease burden for men and the second leading cause for women, with the number of Australians diagnosed with diabetes expected to grow to 3.5 million by 2033. – Diabetes WA*

### A pandemic which demands a community-wide response

Type 2 diabetes has become one of the most common non-communicable diseases (NCDs) in the world,<sup>1</sup> growing fourfold in just over 35 years. It is the fastest growing chronic condition in Australia, increasing more rapidly than heart disease and cancer.<sup>2</sup> In Western Australia, more than 100,000 people have been diagnosed with the disease and many others are suffering from it without a formal diagnosis.

Complications associated with the disease place a significant burden on the tertiary health sector. It is estimated that around \$1 billion per year is spent on dealing with the consequences of type 2 diabetes, which is approximately 10 per cent of the WA health budget. With 28 West Australians diagnosed with diabetes every day,<sup>3</sup> there is an urgent need to address the management and causes of this pandemic. Failure to consider type 2 diabetes as a priority within the health system will lead to ever higher future health costs as prevalence grows and complications requiring hospital treatment increase.

While type 1 diabetes is an autoimmune condition and contracting it is unrelated to a person's lifestyle, type 2 has been designated by many in the community as the fault of an individual's eating habits and lack of exercise – factors deemed to be within their control. The dismissal of type 2 diabetes as a lifestyle disease without acknowledgement of issues around exposure to causal factors, susceptibility and likelihood of adverse health effects has come under increasing scrutiny. Further, research is continuing to try to understand why some people can be overweight and have a normal insulin response and others can be lean and have type 2 diabetes. Attention is therefore shifting to research on the causes of insulin resistance and what can be done to prevent this.

To counter a culture of blame and shame and move to a public health response, it is necessary to identify those with an impaired glucose tolerance who are at greater risk of

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1 Non-communicable diseases (NCDs), also known as chronic diseases, tend to be of long duration and are the result of a combination of genetic, physiological, environmental and behavioural factors. They are not infectious. The World Health Organisation lists the four main NCDs as cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes.

2 Diabetes Australia, *Diabetes is Increasing*, n.d, accessed 18 February 2019, <<https://www.diabetesaustralia.com.au>>

3 Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2018, p. 1.

developing type 2 diabetes, and ways in which the whole community can proactively address this risk.

Complications of poorly managed diabetes can be extremely serious and can impact on a person's fitness to drive. They include cardiovascular disease, kidney failure, nerve damage leading to limb amputation, erectile dysfunction, and blindness. The impact of gestational diabetes is also significant, with progression to type 2 diabetes occurring in half of all cases.

While dietary and exercise interventions have been part of initial type 2 diabetes management for many years, it is only in more recent times that there has been greater emphasis on just how important what people eat can be in treating the disease. Studies conducted over the past decade have investigated the extent of the influence of weight loss on blood glucose levels. Many studies have shown that dietary changes and/or weight loss can put type 2 diabetes into remission.<sup>4</sup> These effective treatments through weight loss can eliminate or reduce dependence on pharmacological treatments and the incidence of complications and hospitalisation. This represents a significant cost saving to the health system. In addition, there are savings from the fall in lost productivity due to ill-health.

Losing weight or maintaining a healthy weight to avoid insulin resistance caused by high glucose levels is difficult when calorific foods are so prominent. This is further complicated as cultural, geographic and socio-economic factors also play a role in what we eat, with some people simply unable to access healthy food, or unaccustomed with its preparation.

An alternative to weight loss through restricting what we eat is bariatric (weight loss) surgery. Bariatric surgery has a high success rate in terms of maintaining weight loss, but a financial cost which puts it out of the reach of many people. There are strong arguments from practitioners that surgery represents a cost-benefit as less is spent on treating diabetes and its complications.

Type 2 diabetes is a costly disease that could be avoided with the implementation of systemic and community-wide changes. Regulatory measures that can be implemented at the state level, such as advertising restrictions and planning laws, can address the availability and appeal of cheap high calorie foods, and are considered as part of this inquiry. Measures related to the social determinants of health, such as equity of access to healthy food – particularly for people in country areas, Aboriginal Australians and people from culturally and linguistically diverse backgrounds – are also considered. Weight management and healthy eating should be a key focus of strategies to prevent type 2 diabetes, but are the strategies we have in place adequate and well targeted?

Ensuring that women of child-bearing age are in good health, so that they do not risk contracting gestational diabetes or passing diabetes to the next generation is a vital task in addressing the type 2 diabetes epidemic.

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4 Remission is achieved as a result of weight loss improving insulin sensitivity and reducing insulin resistance.



## Weight loss and diet is the focus

The main objectives in conducting this inquiry were:

- To consider whether dietary change and weight loss are feasible ways to manage type 2 diabetes into remission
  - Is it feasible from a resourcing and cost perspective for the State to provide the level of support that may be required for this approach?
  - Should guidelines for managing diabetes be modified to reflect the apparent success of weight loss and dietary interventions?
- To investigate the best ways to encourage eating habits that will reduce the incidence of type 2 diabetes
  - In particular, with the shift towards public health planning at the local government level taking place within a few years, what should local governments be considering?
- To determine whether groups most susceptible to type 2 diabetes are receiving the support they need to prevent the disease or to manage it better
- To investigate how the cost of type 2 diabetes to the community and the State health system can be reduced

Management of type 1 diabetes is not being considered as part of this inquiry.

In addition to calling for submissions and conducting hearings with relevant stakeholders in Western Australia, the Committee visited CSIRO researchers in Adelaide and travelled to the United Kingdom to meet with leading researchers, diabetes organisations, government representatives and a GP whose methods have been adopted informally by some Perth GPs.<sup>5</sup>

The rest of this chapter provides an explanation of how type 2 diabetes develops, its prevalence and who is most at risk. The remaining chapters investigate management through diet and weight loss, prevention methods and strategies, the adequacy of prevention and intervention programs, and cost implications.

## Metabolic problems are a precursor

The full name for diabetes, diabetes mellitus, is derived from *diabainein*, the Greek word for siphon (to pass through), referring to the excessive urination that is a symptom of the disease; and *mellitus*, the Latin word for honeyed or sweet-smelling, due to the sweet urine that resulted from the body being unable to process the glucose in the blood.

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<sup>5</sup> See the appendices for details of submissions, hearings, briefings and the inquiry process.

Type 2 diabetes is a metabolic disease<sup>6</sup> characterised by high blood glucose levels which may arise either because the body does not produce enough insulin, or because cells do not respond adequately to the insulin that is produced.<sup>7</sup> Uncontrolled high blood sugar levels (hyperglycaemia) can seriously damage many of the body's systems.

Type 2 diabetes (formerly called non-insulin-dependent, or adult-onset) accounts for more than 85 per cent of diabetes in Australia.<sup>8</sup> It is typically diagnosed after the age of 40, although in recent times it has been diagnosed in younger adults and even adolescents and children. Type 2 diabetes has a strong genetic predisposition and its development is influenced by weight. While type 2 diabetes is often initially managed through a healthy diet, weight loss and physical activity, it is categorised as a progressive disease and treatment eventually centres on oral medication and insulin – in greater doses as the condition worsens. However, as will be explored in chapter two, this treatment regime is being challenged.

There are frequently signs of metabolic dysfunction for many years before a person is diagnosed with type 2 diabetes. This typically includes metabolic syndrome, insulin resistance, fatty liver disease and pre-diabetes.<sup>9</sup> It is estimated that around half a million people in Australia are living with undiagnosed diabetes and two million people have pre-diabetes, in addition to the 1.1 million Australians who have type 2.<sup>10</sup>

When a person eats sugars and carbohydrates, which are broken down into glucose, the rise in the blood sugar level triggers the release of insulin. Insulin is a hormone released by the pancreas to help shift glucose from the blood into the body's muscle cells and the liver. The body uses glucose for energy and if it does not reach the cells a person will feel tired. People with insulin resistance have a different metabolic response after eating carbohydrates. Their muscles resist the action of insulin and the pancreas produces more to keep blood glucose levels normal. High insulin levels may keep glucose levels within the normal range for many years. Eventually, however, the pancreas cannot cope with the extra insulin production and stops functioning properly. This is the point at which blood glucose levels remain elevated and type 2 diabetes is diagnosed.

Insulin is produced by beta cells in the pancreas, and so long as there are still functional beta cells, type 2 diabetes can be treated by tackling the body's insulin resistance, ideally with weight loss. However, the function of beta cells worsens over time if weight loss is not achieved and that is when medication and/or insulin is prescribed.

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6 A metabolic disease is one that disrupts normal metabolism – the process of converting food to energy on a cellular level.

7 Insulin is a hormone that regulates the blood sugar (glucose) formed from the food consumed.

8 Australian Bureau of Statistics, *Australian Health Survey: Updated Results, 2011–12*, cat. no. 4364.0.55.003., 2013, accessed July 2018 from <<http://www.abs.gov.au/AUSSTATS/>>

9 Submission 19, Metabolic Health Solutions Pty Ltd, p. 3.

10 Baker IDI Heart and Diabetes Institute, *Diabetes: the silent pandemic and its impact on Australia*, (eds), Jonathan Shaw and Stephanie Tanamas, 2012, p 13. Emma Sainsbury, Yumeng Shi, Jeff Flack and Stephen Colagiuri, *Burden of Diabetes in Australia: It's Time for More Action*, The Boden Institute, University of Sydney, with grant support from Novo Nordisk, Sydney, July 2018, p. 16.

While the glucose that is pushed into the muscle cells is used as energy, the glucose directed to the liver is stored as glycogen and released again as glucose overnight or between meals (hence the liver has been described as a 'glucose warehouse'). The liver also processes fat, turning the glucose absorbed from the blood into fatty acids and delivering it to fat cells and fat tissues. In some people, particularly those who carry extra weight around the waist, the liver also accumulates fat (fatty liver). If there is already a lot of fat stored in the liver there is nowhere for the excess glucose to go and it remains in the blood, contributing to high blood glucose levels.

The terms metabolic syndrome and insulin resistance are sometimes used interchangeably and there has been debate about which occurs first.<sup>11</sup> Metabolic syndrome is a cluster of risk factors comprising excess abdominal weight, lipid (fats and oils) abnormalities, hypertension and elevated glucose levels.<sup>12</sup> Insulin resistance has many of the same characteristics and is closely

related, but each condition is diagnosed slightly differently. Both, however, are characterised by excess weight around the waistline, and both significantly increase the risk of developing type 2 diabetes.

Given type 2 diabetes is a common disease in our community and the risk of developing the disease is high, early intervention is the best prevention; early detection of metabolic syndrome and insulin resistance is vital to curbing the progress of this health pandemic.

### Complications can lead to hospitalisation

In 2017, diabetes was ranked seventh in the list of leading causes of death in Australia, with 4839 deaths recorded.<sup>13</sup> Diabetes is now the leading cause of end-stage kidney disease and two-thirds of all deaths from cardiovascular disease in Australia occur in people with diabetes or pre-diabetes. Nerve damage in the lower limbs also affects around 13% of Australians with diabetes and more than 15% of diabetics suffer from diabetic retinopathy

#### BOX 1.1 What is a high blood glucose level?

Blood tests which measure the concentration of glucose molecules present in the blood at the time of the test are measured in millimoles per litre of blood (mmol/L).

##### Normal range

4.0 to 5.4 mmol/L after fasting

Up to 7.8 mmol/L 2 hours after eating

##### Pre-diabetes

5.5 to 6.9 mmol/L after fasting

7.8 to 11.0 mmol/L 2 hours after eating

##### Diabetes

7.0 mmol/L or more after fasting

11.1 mmol/L or more 2 hours after eating

*See Appendix 6 for further explanation of blood glucose measurement, including the three-month HbA1c test.*

- 11 Christian Roberts, Andrea Hevener and James Barnard, 'Metabolic Syndrome and Insulin Resistance: Understanding causes and modification by exercise training', *Comprehensive Physiology*, vol. 3, no. 1, January 2013.
- 12 Mark F Harris, 'The metabolic syndrome', *Australian Family Physician*, RACGP, vol. 42, no. 8, August 2013.
- 13 Australian Bureau of Statistics, Causes of Death, Australia, 2017, accessed 15 February 2019, < <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/3303.0~2017~Main%20Features~Australia's%20leading%20causes%20of%20death,%202017~2> >

(damaged blood vessels in the retina). More than 30% of people with diabetes experience depression, anxiety and distress.<sup>14</sup>

In comparison to the general population, people with diabetes are:

- up to 4 times more likely to suffer heart attacks and strokes
- 3 times more likely to suffer kidney failure
- 15 times more likely to have amputations.

This is a serious concern as the number of Australians estimated to be affected by type 2 diabetes, undiagnosed type 2 diabetes and pre-diabetes is 3.65 million,<sup>15</sup> which is almost 15 per cent of the population. Metabolic syndrome is estimated to affect 20 to 30 per cent of Australians,<sup>16</sup> although not all of them will go on to develop type 2 diabetes.

The Australian Institute of Health and Welfare reports that there were around 980,000 hospitalisations due to type 2 diabetes in 2015–16, with 31,700 recorded as the principal diagnosis and 948,000 recorded as an additional diagnosis.<sup>17</sup> Hospitalisation rates (as the principal and/or additional diagnosis) were higher for males than for females and increased with age; the majority (87%) of those hospitalised were aged 55 years and over. Hospitalisation was nearly twice as high in remote and very remote areas as in major cities, and almost twice as high in the lowest socioeconomic group compared with the highest socioeconomic group.

Links have also been made between type 2 diabetes and dementia,<sup>18</sup> and between type 2 and Alzheimer's disease, such that Alzheimer's is often referred to as type 3 diabetes.<sup>19</sup>

## More than a million Australians have been diagnosed

### Global

The World Health Organisation (WHO) estimates that 422 million adults were living with diabetes in 2014.<sup>20</sup> WHO reports that global prevalence had nearly doubled since 1980, rising from 4.7% to 8.5% in the adult population, and the number of people with the disease had quadrupled.<sup>21</sup> This rising figure reflected an increase in associated risk factors such as

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14 Baker IDI Heart and Diabetes Institute, *Diabetes: the silent pandemic and its impact on Australia*, (eds), Jonathan Shaw and Stephanie Tanamas, 2012, p. 21.

15 This is comprised of 1.1 million with type 2 diabetes, 550,000 with undiagnosed type 2 diabetes and 2 million with pre-diabetes, based on figures from the sources referenced at footnote 9.

16 Department of Health healthdirect website, *Metabolic syndrome*, August 2017, accessed 13 March 2019, < <https://www.healthdirect.gov.au> >

17 Australian Institute of Health and Welfare, *Diabetes Snapshot*, 24 July 2018, accessed 20 August 2018, < [www.aihw.gov.au/reports/diabetes/diabetes-compendium/contents/hospital-care-for-diabetes](http://www.aihw.gov.au/reports/diabetes/diabetes-compendium/contents/hospital-care-for-diabetes) >

18 University of Newcastle, Blood sugar and brain health: how diabetes impacts the brain, 14 January 2019, accessed 13 March 2019, < <https://www.newcastle.edu.au/newsroom> >

19 Suzanne M. de la Monte and Jack R. Wands, 'Alzheimer's Disease Is Type 3 Diabetes—Evidence Reviewed', *Journal of Diabetes Science and Technology*, vol. 2, no. 6, November 2008, p. 1101-1113.

20 World Health Organisation, *Global Report on Diabetes*, 2016, p. 6.

21 *ibid.*

being overweight or obese.<sup>22</sup> The International Diabetes Federation (IDF) estimates that if present trends continue, 629 million people will have diabetes by 2045.<sup>23</sup>

### *Australia*

Estimates of diabetes prevalence figures in Australia vary depending on the data source. The 2017–18 National Health Survey, conducted by the Australian Bureau of Statistics, estimates that there are 1 million Australian adults (4.1%) with type 2 diabetes. However, the Boden Institute (within the faculty of medicine and health at University of Sydney) estimates the figure to be 1.1 million, based on 10 data sources.<sup>24</sup> This is closer to the number of type 2 diabetics registered with the National Diabetes Service Scheme, which was 1,138,257 in December 2018, according to Diabetes Australia. In the preceding 12 months, there were 61,652 new registrants, which is the equivalent of 169 new registrants per day.<sup>25</sup>

The Boden Institute report says that based on the estimated number of people with diagnosed type 2 diabetes, there are estimated to be another 550,000 with undiagnosed diabetes. This means people with undiagnosed diabetes account for one-third of all people with the disease.<sup>26</sup>

The report also says that prevalence has more than tripled in the past 25 years and there was no sign that this was slowing; however, the latest National Health Survey (2017–18), released after the Boden Institute's report, states that prevalence has remained relatively stable since 2014–15.<sup>27</sup> Expectations are, however, that the number of people with diabetes will continue to rise. It is estimated up to 3 million Australians over the age of 25 years will have diabetes by the year 2025,<sup>28</sup> rising to 3.5 million by 2033.<sup>29</sup>

The National Health Survey notes that one of the main risk factors for developing type 2 diabetes is being overweight or obese. In 2017–18, adults aged 18 years and over who were obese were almost five times as likely as those of normal weight to have type 2 diabetes (9.8% compared to 2.0%). Similarly, adults who were overweight were more than twice as likely to have type 2 diabetes (4.6% compared to 2.0%) than adults of a normal weight (see Figure 1.1).

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22 *ibid.*

23 International Diabetes Federation, *Diabetes Facts and Figures*, 2017, accessed 20 August 2018, <<https://www.idf.org>>

24 Emma Sainsbury, Yumeng Shi, Jeff Flack and Stephen Colagiuri, *Burden of Diabetes in Australia: It's Time for More Action*, The Boden Institute, University of Sydney, with grant support from Novo Nordisk, Sydney, July 2018, pp. 2, 6, 16.

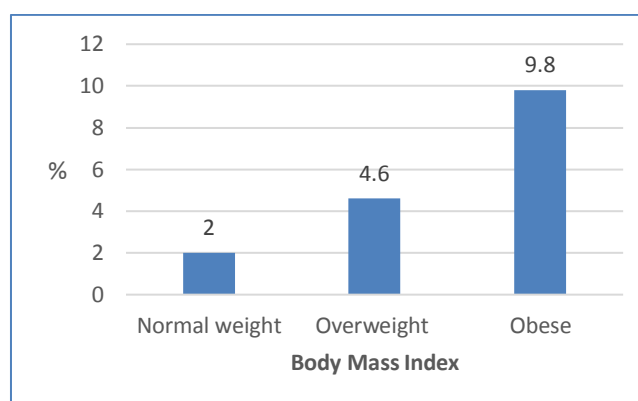
25 Diabetes Australia, *Statistical Snapshot, Type 2 diabetes*, 31 December 2018.

26 Emma Sainsbury, Yumeng Shi, Jeff Flack and Stephen Colagiuri, *Burden of Diabetes in Australia: It's Time for More Action*, The Boden Institute, University of Sydney, with grant support from Novo Nordisk, Sydney, July 2018, pp. 6–7, 16.

27 Australian Bureau of Statistics, *National Health Survey: First Results, 2017–18*, accessed 15 February 2019, <[www.abs.gov.au/ausstats/](http://www.abs.gov.au/ausstats/)>

28 Baker IDI Heart and Diabetes Institute, *Diabetes: the silent pandemic and its impact on Australia*, (eds), Jonathan Shaw and Stephanie Tanamas, 2012, p 4.

29 Submission 9, Diabetes WA, p. 1.



**Figure 1.1: Proportion of Australians (aged 18 and over) with type 2 diabetes, according to body mass index 2017–18.** Data source: National Health Survey 2017–18 data.

### Western Australia

Diabetes WA reports that 28 Western Australians are diagnosed with diabetes every day.<sup>30</sup> While this figure does not distinguish between type 1 and type 2, we understand from other evidence that around 85 to 90 per cent of diagnoses would be type 2.<sup>31</sup>

Diabetes WA said in a hearing that the number of people being diagnosed with type 2 diabetes in WA has decreased, based on National Diabetes Services Scheme (NDSS) data.<sup>32</sup> The NDSS figures refer to the number of diabetics registered with the NDSS. There may be diabetics who are not registered with the scheme. The June 2018 NDSS figures put type 2 prevalence in WA at 4.3% (and 5.1% Australia-wide). This is approximately 110,000 people.<sup>33</sup>

It is difficult to find a recent reliable figure other than this one for type 2 diabetes prevalence in WA. The most recent ABS National Health Survey does not yet provide a state breakdown, and the state breakdown in the previous national survey (2014–15) does not report type 1 and type 2 separately. The overall figure for WA from the 2014–15 survey is 4.8%.<sup>34</sup> The NDSS prevalence figure for all types of diabetes is 4.9%.<sup>35</sup>

The WA Department of Health’s *Health and Wellbeing of Adults in Western Australia 2017* report, released last year, also does not distinguish between type 1 and type 2 when reporting prevalence, but shows it increasing overall from 4.8% in 2002 to 7.2% in 2017.<sup>36</sup> The *Health and Wellbeing* report tables do not show anyone in the age group 16 to 44 years as having type 2 diabetes, and yet the NDSS data has more than 5000 WA registrants in this age group.<sup>37</sup> Type 2 diabetes was said to account for only 65% of all diabetes, which is

30 Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2018, p. 1.

31 Diabetes Australia, *Type 2 Diabetes*, accessed 28 March 2019, <[www.diabetesaustralia.com.au](http://www.diabetesaustralia.com.au)>

32 Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2018, pp. 3,7.

33 NDSS, *State Statistical Snapshot*, supplied by Diabetes WA, created 3 July 2018.

34 Australian Bureau of Statistics, *National Health Survey: First Results, 2013–15*, released 23 March 2016.

35 NDSS, *State Statistical Snapshot*, supplied by Diabetes WA, created 3 July 2018.

36 M Merema and A Radomiljac, *Health and Wellbeing of Adults in Western Australia 2017, Overview and Trends*, Department of Health, Western Australia, 2018, p. 29.

37 The report explains that questions on chronic conditions were not always asked of 16 to 24-year-olds until 2006, hence chronic condition estimates are presented for 25-year-olds and over to ensure comparability across years. However, this does not explain why the 2017 data for this age group could not be shown if not being compared with other years (as in Table 15 of the report).

inconsistent with the commonly quoted figure (nationally and internationally) of around 85%. The discrepancy in the data is most likely a reflection of the survey methodology – all information is based on self-reported data from a telephone survey of numbers randomly selected from the White Pages directory.

### Finding 1

There is insufficient data to clearly identify how many West Australians are currently suffering with type 2 diabetes and to predict the increase in incidence of the disease.

### Recommendation 1

The Department of Health should ensure that it collects accurate data showing the incidence of type 2 diabetes in all sectors of the West Australian population.

## Some groups are more at risk than others

### *Indigenous Australians*

Indigenous Australians are three times more likely to have type 2 diabetes than non-Indigenous Australians, with the likelihood even higher for those living in remote areas.<sup>38</sup> Biomedical data published by Australian Indigenous HealthInfoNet indicate that diabetes tends to occur at an earlier age among Aboriginal and Torres Strait Islander adults, with rates comparable to non-Indigenous people aged 20 years older. Remoteness was also a factor, with Aboriginal and Torres Strait Islander adults in remote areas twice as likely to have diabetes as those living in non-remote areas (20.8% compared with 9.4%).<sup>39</sup>

The discrepancy is even greater when comparing rates of type 2 diabetes among young adolescents. The age-specific rates of type 2 diabetes for young Aboriginal and Torres Strait Islander people were much higher than for their non-Indigenous counterparts (8.3 times as high among 10–14 year olds and 3.6 times as high for 15–19 year olds). After age adjustment, the incidence rate of type 2 diabetes for Aboriginal and Torres Strait Islander people aged 10–39 years was 3.5 times that of non-Indigenous people.<sup>40</sup>

### *Culturally and linguistically diverse groups*

Many migrant populations in Australia have a higher prevalence of diabetes and higher rates of diabetes-related hospitalisations and mortality rates than people born in Australia.<sup>41</sup> Approximately 35 per cent of people who reported having diabetes in 2001 were born overseas, despite only 28 per cent of the Australian population in 2001 being born overseas.<sup>42</sup>

38 Baker IDI Heart and Diabetes Institute, *Diabetes: the silent pandemic and its impact on Australia*, (eds), Jonathan Shaw and Stephanie Tanamas, 2012, p. 1.

39 Australian Indigenous HealthInfoNet, *Review of diabetes among Aboriginal and Torres Strait Islander People*, March 2016, p. 9.

40 *ibid.*, p. 10.

41 Diabetes Australia, *New diabetes resources address most people at risk*, 2014, accessed 18 February 2019, <[www.diabetesaustralia.com.au](http://www.diabetesaustralia.com.au)>

42 Australian Institute of Health and Welfare, *A picture of diabetes in overseas-born Australians*, 2003, accessed 18 February 2019, <[www.aihw.gov.au](http://www.aihw.gov.au)>

## Chapter 1

The regions of birth with the highest diabetes prevalence were the South Pacific Islands, southern Europe, eastern Europe, central Asia, the Middle East, North Africa and southern Asia.<sup>43</sup> A more recent AIHW report says that those at higher risk of developing type 2 diabetes (in Australia) are Pacific Islanders, people from the Indian subcontinent, and people of Chinese and Vietnamese origin.<sup>44</sup>

It is thought that the differences in diabetes prevalence and risk by birthplace are due to a combination of genetic, biological, behavioural and environmental risk factors. Migrants often had higher rates of diabetes than their compatriots still living in the country of origin.<sup>45</sup>

### *Women who have had gestational diabetes mellitus (GDM)*

In the last 10 years, more than 200,000 women have developed gestational diabetes in Australia with predictions this will rise to more than 500 000 in the next decade. Gestational diabetes now occurs in around 30% of pregnancies in Australia<sup>46</sup> and in addition to posing an immediate risks, also poses risks in the longer term:

*GDM can be a serious risk to mother and baby during pregnancy. After pregnancy, 1 in 2 women will go on to develop type 2 diabetes later in life and children born to mothers who have GDM are at increased risk of obesity and developing type 2 diabetes.*<sup>47</sup>

Women with Polynesian, Asian, Middle Eastern and Aboriginal and Torres Strait Islander backgrounds have significantly higher risks of developing gestational diabetes.<sup>48</sup>

### *Those with a family history*

Type 2 diabetes has strong genetic and family related risk factors; those who have a family member with type 2 diabetes have a genetic predisposition to the condition and a greater chance of developing it. Some recent studies suggest that early developmental factors, including intrauterine exposures, also have a role in susceptibility later in life.<sup>49</sup>

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43 Australian Institute of Health and Welfare, *A picture of diabetes in overseas-born Australians*, 2003, accessed 18 February 2019, <[www.aihw.gov.au](http://www.aihw.gov.au)>

44 Australian Institute of Health and Welfare, *Diabetes: Australian facts 2008*, accessed 18 February 2019, <[www.aihw.gov.au](http://www.aihw.gov.au)>

45 Professor Timothy Davis, Department of Health, *Transcript of Evidence*, 12 September 2018, p. 8.

46 Submission 35, Dietitians Association of Australia/Australian Diabetes Educators Association, p. 5.

47 Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2018, p. 2.

48 Submission 35, Dietitians Association of Australia/Australian Diabetes Educators Association, p. 4; Submission 36, Kimberley Community Legal Services, p. 2.

49 Xinli Jiang et al., 'Early Life Factors and Type 2 Diabetes Mellitus', *Journal of Diabetes Research*, vol. 2013, <<http://dx.doi.org/10.1155/2013/485082>>



## Chapter 2

# Managing type 2 diabetes through diet and weight loss

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*In practice I find very few patients will choose lifelong diabetes medication if given the chance to take control of their diabetes themselves. – Dr David Unwin*

There are three broad management options for people diagnosed with type 2 diabetes: pharmacological treatments, lifestyle interventions or bariatric surgery. While medication seeks to manage a patient's elevated blood glucose level, lifestyle interventions and bariatric surgery seek to either lower a patient's blood glucose level to the point where prescribed medications can be reduced, or to lower it to the point where a blood glucose level in the normal range can be sustained for a long period. When this occurs, diabetes can be considered to have gone into remission and no medication is required.

This chapter considers the efficacy of two prominent dietary interventions which have delivered promising remission results, as well as the suitability of nutrition guidelines for diabetics and the adequacy of advice regarding treatment options. Bariatric surgery as a potentially cost-effective treatment will also be examined. While this is largely a medical intervention, aspects of the lifestyle intervention approach are critical to its success. Effective self-management of the condition can also lead to less reliance on medication. Hence, this chapter will also consider group lifestyle intervention programs which help people with type 2 diabetes to understand and manage the psychosocial aspects of their eating habits.

### Dietary interventions are challenging conventional treatments

#### A very low calorie diet has been found to put diabetes into remission

A study investigating the effects of a very low calorie diet (VLCD) on type 2 diabetes has been shown to produce remission in 46 per cent of patients who were administered the diet in a primary care setting. After one year, the participants were considered to be in a non-diabetic state and were no longer taking antidiabetic drugs.<sup>50</sup> Professor of medicine and metabolism at UK's Newcastle University, Roy Taylor, has used the very low calorie diet in a series of studies to find out whether the sudden reduction of calorie intake which occurs after gastric bypass surgery (which can induce diabetes remission) could be replicated using a dietary approach. Professor Taylor was testing his so-called Twin Cycle Hypothesis that excess fat in the liver is passed on to the pancreas, preventing insulin release. He describes the results of that first study, published in 2011, as 'jaw-dropping'.<sup>51</sup> Participants' glucose

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50 Roy Taylor and Michael EJ Lean et al., 'Primary care-led weight management for remission of type 2 diabetes (DIRECT): an open-label, cluster-randomised trial', *The Lancet*, vol. 391, iss. 10120, February 2018, pp. 541-551.

51 Professor Roy Taylor, *Briefing*, 4 February 2019.

levels were normal after just seven days of the 600-calories per day diet. Losing even a small amount of fat from the liver and pancreas through diet could restart the normal production of insulin.

Professor Taylor's subsequent study, published in 2016, involved 30 volunteers who had had type 2 diabetes for between six months and 23 years and included a second phase of weight maintenance. During this six-month phase, participants transitioned from liquid meal replacements to a modestly restricted calorie diet and increased their physical activity. They were supported by a structured, individualised program based on setting goals and action plans and identifying barriers.<sup>52</sup>

A larger scale project to determine whether it is practical to apply this approach more broadly through a primary care setting is currently underway. DiRECT, the Diabetes Remission Clinical Trial, is a five-year study funded by Diabetes UK and led jointly by Professor Taylor and Professor Mike Lean of Glasgow University. The trial is testing whether eight hours of structured training delivered by a general practice nurse can produce the same results as in the patients who were involved in the closely controlled research centre trials. After the total diet replacement for three to five months, participants in the intervention group underwent six to eight weeks of food reintroduction and were then offered monthly 30-minute appointments with a dietitian or practice nurse.

The one-year data showed almost half of patients had achieved remission. The two-year data, released just last month (March), indicates that at the two-year mark just over one-third (36%) of participants were still in remission. The study confirmed the close link with weight loss, with around two-thirds of those who had lost more than 10kg in remission.<sup>53</sup> It also revealed a difference in complications between the control and the intervention group. In the second year, six participants in the intervention group suffered nine serious adverse events and 16 in the control group suffered 22 serious adverse events, including two cerebral vascular accidents and one toe amputation.<sup>54</sup> This has cost-saving implications for treating the complications of type 2 diabetes, (discussed further in chapter five).

Participants in the intervention group spent an average of 16 weeks on the meal replacement diet. DiRECT used liquid meal replacements to provide a nutritionally balanced 800 calories a day diet, because it was considered simpler for the practice nurses who would be overseeing the diet.

The DiRECT study attracted a much higher response rate than usual when GPs called for volunteers – 28 per cent compared to the usual 6 per cent. Professor Taylor explained how the response to the study exposed something medical professionals had not been fully aware of:

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52 Sarah Steven et al., 'Very Low-Calorie Diet and 6 Months of Weight Stability in Type 2 Diabetes: Pathophysiological Changes in Responders and Nonresponders', *Diabetes Care*, vol. 39, no. 5, May 2016, pp. 808-815.

53 Michael Lean et al., 'Two-year results of the randomised Diabetes Remission Clinical Trial (DiRECT)', presented at the DUK Professional Conference, 6 March 2019, pp. 11-12. Accessed from <[www.directclinicaltrial.org.uk](http://www.directclinicaltrial.org.uk)>

54 *ibid.*, p. 14.

*We've tapped into something doctors and nurses just had not seen: that a large number of people with type 2 diabetes absolutely hate their condition, hate taking tablets, hate the medicalisation of their lives, and they certainly hate paying the extra insurance costs – about 50 per cent more for holidays and life insurance.<sup>55</sup>*

He said there was a sizeable minority of people who were desperately keen to participate, and others who would have with sufficient encouragement.

*There are some who are always going to enjoy their pie and pint – and we can manage those, we've got tablets and insulin... I would see this very much as a choice, but one which is potentially hugely advantageous to healthcare systems in terms of health economics.<sup>56</sup>*

Losing weight quickly on the VLCD results in fat being lost from the liver very rapidly (after about a week) and from the pancreas over the course of a month or two, reinstating insulin sensitivity and normal beta-cell function over the course of eight weeks.<sup>57</sup> Contrary to long-held beliefs, losing weight rapidly does not lead to people regaining weight more rapidly than if they had lost weight gradually over a long period.<sup>58</sup> A rapid weight loss program made it easier for people to allocate a specified time to focus on their weight loss goal, according to Professor Taylor. While weight loss over a longer period may deliver similar results, the short timeframe resulted in greater motivation as it delivered quicker rewards.<sup>59</sup>

While liquid meal replacements (shakes) were used in DiRECT, Professor Taylor stated it would be possible to follow the 800 calorie diet using ordinary food with the addition of a daily multivitamin tablet to meet nutritional requirements.<sup>60</sup> Shakes were also used with success in another international study (PREVIEW) aimed at people with pre-diabetes, outlined in chapter three. The CSIRO also uses shakes in its Impromy and Flexi programs, although these are aimed specifically at weight loss and not in particular at diabetics hoping to achieve remission. Again, as programs aimed at weight loss, these are preventative methods which will be considered in the next chapter.

### **Patients are controlling their diabetes by reducing carbohydrate intake**

Using a low carbohydrate diet for weight loss is not necessarily new. As CSIRO principal research scientist Professor Grant Brinkworth told the Committee:

55 Professor Roy Taylor, *Briefing*, 4 February 2019.

56 *ibid.*

57 Roy Taylor et al., 'Remission of Human Type 2 Diabetes Requires Decrease in Liver and Pancreas Fat Content but Is Dependent upon Capacity for  $\beta$  Cell Recovery', *Cell Metabolism*, vol. 28, 2 October 2018, p. 1; Sarah Steven et al., 'Very Low-Calorie Diet and 6 Months of Weight Stability in Type 2 Diabetes: Pathophysiological Changes in Responders and Nonresponders', *Diabetes Care*, vol. 39, no. 5, May 2016, pp. 808-815.

58 Dr Michael Mosley, *The fast 800*, Simon and Schuster, Cammeray, NSW, 2019, p. 72.

59 Professor Roy Taylor, *Briefing*, 4 February 2019; Professor Susan Jebb, quoted in Dr Michael Mosley, *The fast 800*, Simon and Schuster, Cammeray, NSW, 2019, p. 80.

60 Professor Roy Taylor, *Briefing*, 4 February 2019.

*We have had a genuine acceptance now with what we have done with CSIRO low-carb, because it incorporates all the food groups, it is lower in carbohydrate, focuses on proportionally higher intakes of healthy fat and protein but remains nutritionally complete. There is a general acceptance of that pattern amongst the general public and governing health bodies as an option for weight and type 2 diabetes management.*<sup>61</sup>

At least two submissions pointed out that reducing carbohydrate intake as a way to treat obesity dates back to the mid-19<sup>th</sup> century (the Banting diet) and has resurfaced in various forms ever since (e.g. the Atkins diet).<sup>62</sup> There is evidence of a link being made between type 2 diabetes control and carbohydrate intake more than a century ago also,<sup>63</sup> but contemporary advice has been that diabetics should include carbohydrate in their diet. More recently, studies have illustrated that reducing carbohydrates may assist type 2 diabetics to reduce their blood sugar levels, often returning to the normal range.<sup>64</sup>

Around half of the inquiry submissions referred to the low carbohydrate diet, in most cases to recommend it as an effective management option. Most GPs, dietitians and those with type 2 diabetes who raised it had come across it through their own research or by chance. Some submissions provided summaries, extensive reference lists and/or attached journal papers of international studies to demonstrate the evidence for a low carbohydrate diet to treat type 2 diabetes.<sup>65</sup>

A submission from Professor Richard Feinman, a professor of cell biology at State University of New York Downstate Medical Center, outlined 12 points of evidence supporting carbohydrate restriction which had been presented in a 2015 review he co-authored with 24 other major researchers and clinicians.<sup>66</sup> The authors regarded the 12 points as representing the 'best-documented, least controversial results'. The key points made are that dietary carbohydrate restriction reliably reduces high blood glucose, does not require weight loss (although is still best for weight loss), leads to the reduction or elimination of medication, is easily adhered to, and has never shown side effects comparable with those seen in many drugs.

Professor Feinman notes in his submission that it is common to say that carbohydrate restriction is good in the short term but that there is no evidence of benefits beyond 6 to 12

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61 Professor Grant Brinkworth, CSIRO, *Briefing*, 28 September 2018.

62 Submission 12, Dr Philip O'Brien, pp. 24-26; Submission 18, Ms Liz Mountford.

63 Submission 12, Dr Philip O'Brien, p. 24.

64 JS Volek et al., 'Carbohydrate Restriction has a More Favorable Impact on the Metabolic Syndrome than a Low Fat Diet,' *Lipids*, vol. 44, no. 4, 2008, pp. 297-309; SJ Hallberg et al., 'Effectiveness and Safety of a Novel Care Model for the Management of Type 2 Diabetes at 1 Year: An Open-Label, Non-Randomized, Controlled Study', vol. 9, no. 2, 2018, pp. 583-612.

65 Submission 2, Mr Ronald Bareis; Submission 12, Dr Philip O'Brien; Submission 18, Ms Liz Mountford; Submission 26, Professor Richard Feinman; Submission 27, Dr Joe Kosterich.

66 Richard Feinman et al., 'Dietary carbohydrate restriction as the first approach in diabetes management: Critical review and evidence base', *Nutrition*, no. 31, 2015.

months.<sup>67</sup> However, he says that ‘there are now many long term trials and low-carb diets outperform others for as long as they are compared’.<sup>68</sup>

The two low carbohydrate programs most cited in the submissions were: the US-based online program Virta, developed following a clinical trial which reversed diabetes in nearly half of the 238 participants who followed the diet for 10 weeks;<sup>69</sup> and the program developed by UK general practitioner Dr David Unwin, who has amassed his own body of evidence using the experiences of his patients to demonstrate the effectiveness of a low carbohydrate diet administered with GP support.

In the Virta program, the key to reversing diabetes is reducing carbohydrate intake to the point of inducing nutritional ketosis. Nutritional ketosis is a metabolic state that allows the body to substitute fat for carbohydrates as the primary energy source. When burning fat as the primary energy source, the body produces molecules called ketones. According to Virta, ketones can provide a steady flow of energy for important organs (e.g. the brain), and can reduce hunger and cravings. The program runs on a digital app which provides access to experts and personalised support.<sup>70</sup>

#### **BOX 2.1: What is a low carbohydrate diet?**

Different sources categorise carbohydrate intake differently, but these are some commonly used definitions (total energy intake based on a 2000 calorie per day diet).

##### **Very low carbohydrate (ketogenic) diet**

20–50g per day or <10% of total energy intake

##### **Low carbohydrate diet**

<130g per day or <26% of total energy intake

##### **Moderate carbohydrate diet**

130g–225g per day or 26%–45% of total energy intake

##### **High carbohydrate diet**

>225g per day or >45% of total energy intake

As a GP rather than a clinical researcher, Dr Unwin’s exposure to the impact of a low carbohydrate diet was through his patients. The Committee visited Dr Unwin’s practice in Southport, UK. He explained that after being alerted to the potential of the low-carb diet for treating type 2 diabetes by a patient (see Box 2 for more details), he began his own investigations into how the diet worked, which related to the effect of carbohydrates with a high glycaemic index (GI) on blood glucose.

The glycaemic index (GI) ranks carbohydrates on a scale from 0 to 100 based on how quickly and by how much they raise blood sugar levels after eating. The value of 100 corresponds to pure glucose. Foods with a high GI (70–100) cause blood glucose levels to go higher for longer, potentially damaging vital tissues and organs. Low GI carbohydrates (55 or less) are

67 Submission 9, Diabetes WA; Submission 35, Dietitians Association of Australia/Australian Diabetes Educators Association; Dr Christina Pollard, *Transcript of Evidence*, 19 September 2019; Mr Ahmed, Mr Marco Adamo, Dr Alex Miras, *Briefing*, 29 January 2019.

68 Submission 26, Professor Richard D. Feinman, p. 2.

69 Amy McKenzie et al., ‘A novel intervention including individualized nutritional recommendations reduces hemoglobin A1c level, medication use, and weight in type 2 diabetes’, *JMIR Diabetes*, vol. 2, no. 1, 2017.

70 Virta, *The Virta Treatment: How it works*, 2019, accessed 18 February 2019, <<https://www.virtahealth.com>>

slowly digested, absorbed and metabolised, causing a lower and slower rise in blood glucose and insulin levels.

However, Dr Unwin found that understanding of GI by patients and professionals was poor, with many assuming that the GI of table sugar (65) would be higher than some starchy foods such as wholemeal bread (74) and baked potatoes (86). Health practitioners also needed to understand glycaemic load (GL), which takes into account the carbohydrate content of the food and a likely portion size for any particular food eaten. It is calculated as GI (%) multiplied by the amount of carbohydrate (in grams). For example, a potato contains 17g of carbohydrate per 100g. A typical 150g baked potato contains 25.5g and its GI is 86. Therefore, the GL is roughly 22g ( $0.86 \times 25.5$ g). To help practitioners and patients understand what this means and to avoid having to make the calculations themselves, Dr Unwin created a table showing teaspoon of sugar equivalents. The GL of a baked potato is the same as the GL of 8.2 teaspoons of sugar.

In a journal article outlining his findings, Dr Unwin points out that using GI alone can be misleading, since the blood glucose response depends on the density of carbohydrates in the food. For example, a food such as broccoli has a moderately high GI of 54, but because the broccoli has a high water content and low carbohydrate content, the blood glucose response is very low and almost independent of the GI. However, for starchy foods which contain a lot of carbohydrate, a high GI will have an impact.<sup>71</sup>

Using the teaspoons of sugar infographic and a pamphlet which recommended patients reduce or cut out starchy and sugary foods (see Appendix 7), Dr Unwin conducted a study of 69 patients from his Norwood Surgery who had abnormal liver function, diabetes or impaired glucose tolerance. All but one spent an average of 13 months on the diet. Average weight loss was 9kg, waist circumference reduced by 15cm, blood glucose control (measured as HbA1c) fell by 10 mmol/mol or 19%, liver function improved by 39% and cholesterol fell by 5%.

The Norwood Surgery cohort has since expanded to 107 patients who have spent up to two years on the low-carb diet, with 47 per cent achieving drug-free type 2 diabetes remission. Five have been able to stop taking insulin. This, Dr Unwin points out, has translated to big cost savings to the National Health System (NHS). Norwood Surgery went from being the most prolific prescriber to the lowest out of the 19 practices in the area, spending £38,000 (around \$70,000) less on drugs for diabetes in 2016 than the local average.<sup>72</sup> Dr Unwin reported that in 2018 the surgery returned £50,000 (\$90,000) of unspent drug budget money to the government (this included savings from fewer prescriptions for hypertension).<sup>73</sup> Dr Unwin continues to track and meticulously record the progress of his patients on the low carb diet to add to the body of evidence supporting his claims.

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71 David Unwin, David Haslam and Geoffrey Livesey, 'It is the glycaemic response to, not the carbohydrate content of food that matters in diabetes and obesity: The glycaemic index revisited', *Journal of Insulin Resistance*, vol. 1, no. 1, 2016.

72 Submission 10, Dr David Unwin, pp. 4-5, 7.

73 Dr David Unwin, *Briefing*, 31 January 2019.

*For five years I have asked how patients feel about starting lifelong medication for type 2 diabetes, offering the lower carb diet as an alternative option. Not a single patient has opted to start insulin or medication. How would it be if we could empower our patients, improve health outcomes and reduce drug budgets?*<sup>74</sup>

Dr Unwin has also teamed up with Diabetes Digital Media (DDM), a privately owned British-based digital communication channel, to provide advice on carbohydrates and glycaemic load for its Low Carb Program. The program was rolled out in 2015 and has 394,000 participants worldwide, one thousand of which were randomly selected for a tracking study conducted in conjunction with the University of Michigan. The one-year results of the study show that the selected participants lost an average of 7.4kg and reduced their HbA1c by 1.2% (13mmol). Around a quarter were in remission, 40% who had been on medications were able to eliminate one or more medications, and 60% who were on insulin when they started the program reduced or eliminated insulin.<sup>75</sup>

The Committee received submissions from two GPs<sup>76</sup> who prescribe a low carbohydrate diet to patients with type 2 diabetes. One of them has been relying on the materials created by Dr Unwin due to 'the lack of resources in Australia'.<sup>77</sup> A number of dietitians and patients also submitted details of their positive experiences with a low carbohydrate diet, including a woman in her 60s who has tracked her progress since 2012 when she had elevated blood glucose levels:

*I have maintained a 15kg weight loss for over 6 years and have not been diagnosed with any complications of diabetes. I follow a low carbohydrate diet averaging 50-70g of carbs per day. I find the diet easy to follow and in no way onerous.*<sup>78</sup>

### **Healthcare professionals are deeply divided on dietary recommendations**

While it can be challenging to attain a clear picture of which dietary approaches are supported by evidence and which are not, one thing is very clear: views on diets and nutrition are deeply held, hotly contested and passionately defended. As GI researcher Professor Jennie Brand-Miller (herself no stranger to controversy) says:

*I think it is a lot to do with nutrition as a subject—there are always a lot of opinions and they often are polarised, not just on carbohydrates and glycaemic index, but on any aspect of nutrition. You can see through the history a lot of controversy.*<sup>79</sup>

<sup>74</sup> Submission 10, Dr David Unwin, p. 4.

<sup>75</sup> Charlotte Summers and Arjun Panesar, Diabetes Digital Media Ltd, *Briefing*, 31 January 2019.

<sup>76</sup> Submission 27, Dr Joe Kosterich; Submission 11, Dr Sanjeev Balakrishnan.

<sup>77</sup> Submission 11, Dr Sanjeev Balakrishnan, p. 1.

<sup>78</sup> Submission 32, Jill Tanner, p. 1.

<sup>79</sup> Professor Jennie Brand-Miller, Glycaemic Index Foundation, *Transcript of Evidence*, 17 October 2019, p. 1.

While there now seems to be consensus among diabetes organisations and peak medical bodies that changing eating habits and other lifestyle measures should be used as the first step in managing type 2 diabetes, there is wide variation in terms of what this looks like. What type of interventions, for how long, with what support, delivered by whom?

While targeting weight is an obvious starting point, medical researchers are still working out the relationship between weight and type 2 diabetes. Carrying too much weight is the biggest risk factor for type 2 diabetes – but there are also people of normal weight who have the disease. There are also many people who are overweight who do not have and may never have type 2 diabetes. There is clearly a genetic influence, which will be discussed in the next chapter, but it is also dependent on where the fat is stored and a person's carbohydrate tolerance.

The two main dietary interventions presented here target type 2 diabetes in different ways, but are complementary.

The VLCD research demonstrates that losing fat from the liver and the pancreas is what brings down blood glucose levels. But in following the recommended very low calorie diet to achieve rapid weight loss, the patient will eliminate or reduce many of the foods targeted by the low carb diet. Advocates of the low carb approach see the effect of carbohydrate reduction on insulin as being of most importance, with weight loss an added benefit.

As Feinman et al. (2015) and Professor Brinkworth<sup>80</sup> note, there is a body of evidence that shows that the reduction in HbA1c is related to the amount of dietary carbohydrate, so any dietary pattern that is lower in carbohydrate is likely to drive greater improvements in blood glucose over and beyond the effects of weight loss. A low carb diet – which is often higher in protein and fat – does not focus on reducing calories, but it will nevertheless result in fewer calories being consumed. The two approaches can be combined, as described in books such as Michael Mosley's *The 8-week blood sugar diet* and *The Fast 800*. If shakes are not used for initial rapid weight loss, a low carb diet, such as a Mediterranean diet, can be followed to achieve 800 calories a day every day and then continued a couple of days per week for further gradual weight loss or maintenance.

### ***The very low calorie diet has not been officially embraced***

Using the VLCD as a way to manage type 2 diabetes has not yet found its way into the official diabetes management guidelines in either the United Kingdom or Australia; however, the UK appears to be moving closer to this with a trial of a very low calorie liquid diet announced by NHS England at the end of last year. The trial, which will involve 5000 people, is part of an extension to the NHS Diabetes Prevention Programme (DPP), which saw the DPP double to 200,000. The DPP is a behaviour change program conducted over nine months which largely consists of educational and nutritional advice, but NHS England was encouraged to offer the

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80 Richard Feinman et al., 'Dietary carbohydrate restriction as the first approach in diabetes management: Critical review and evidence base', *Nutrition*, no. 31, 2015; Professor Grant Brinkworth, CSIRO, *Briefing*, 28 September 2018.



meal replacement program following the initial success of the DiRECT trial (which is ongoing).<sup>81</sup>

UK health professionals are officially guided by the NICE (National Institute for Health and Clinical Excellence) guidelines for management of type 2 diabetes in adults, last updated in May 2017, and they have nothing to say about remission or about the VLCD. Diabetes UK, the leading charity for people affected by diabetes in the UK, has been publishing nutrition guidelines for diabetes since 1982, with the latest update in 2018. In a chapter on weight management and remission of type 2 diabetes, the guidelines recommend losing 15kg as soon as possible for remission but do not recommend a particular weight loss strategy, citing uncertainties over the most effective dietary intervention for successful weight loss. Nevertheless, as its continuing funding of the DiRECT study indicates, it supports research into remission which it sees as having the potential to change millions of people's lives.<sup>82</sup>

The American Diabetes Association (ADA) and European Association for the Study of Diabetes (EASD) has recently published an updated position statement on management of hyperglycaemia in type 2 diabetes, acknowledging in an accompanying paper that the most effective nonsurgical strategies for weight reduction involve food substitution and intensive, sustained counselling (e.g. a meal replacement of 825–853 calories a day for 3 to 5 months).<sup>83</sup>

There is awareness of the VLCD and the DiRECT study in Australia and WA, helped by publicity surrounding UK broadcaster and author Michael Mosley's book *The 8-week blood sugar diet*. The book describes how the VLCD works to reduce blood sugar levels in people with type 2 diabetes, and provides low calorie recipes.

In WA, GPs and other health professionals can refer to the online HealthPathways tool which provides clinical and health service information and access to relevant medical evidence. The clinical content is written by local GPs in conjunction with local specialist physicians, or other local health professionals where appropriate. The pathways are reviewed every three years, with the next review due this year. According to the WA Primary Health Alliance (WAPHA), which has led the development of the pathways, the diabetes pathways are underpinned by the Royal Australian College of General Practitioners (RACGP) diabetes guidelines, as well as evidence from other credible organisations and journal publications.<sup>84</sup>

The RACGP's *General practice management of type 2 diabetes: 2016-18* mention a goal of 5 to 10 per cent weight loss for people who are overweight or obese to improve glycaemic

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81 NHS England, *Very low calorie diets part of NHS action to tackle growing obesity and Type 2 diabetes epidemic*, 30 November 2018, accessed 23 February 2019, <[www.england.nhs.uk](http://www.england.nhs.uk)>

82 *Research spotlight – putting Type 2 diabetes into remission*, accessed 15 February 2019, <<https://www.diabetes.org.uk/research>>

83 Melanie Davies et al., 'Management of Hyperglycemia in Type 2 Diabetes, 2018. A Consensus Report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD)', *Diabetes Care* 2018 Dec; 41(12): 2669-2701. <<http://care.diabetesjournals.org/content/41/12/2669>>

84 Mrs Christine Kane, WA Primary Health Alliance, Letter, 14 December 2018, pp. 1-2.

control. Very low energy diets are mentioned as ‘a useful intensive medical therapy for supporting rapid weight loss when used under medical supervision’.<sup>85</sup>

The dietary advice in HealthPathways does not mention a very low calorie diet, although under the heading Diabetes Continuing Care it is suggested that GPs advise patients that restricting energy intake (along with increasing physical activity and reducing weight) will initially normalise blood glucose levels in over 50% of patients. At several points when discussing lifestyle and nutrition, the portal includes a link to Diabetes Dietary Information.<sup>86</sup> This information is a direct reflection of the advice provided by Diabetes WA and Diabetes Australia in a document called *Food choices for people with diabetes*, which will be discussed in more detail later in the chapter.

Diabetes Australia, the national body for consumers, health professionals and researchers, does not mention the VLCD and neither does the website of its state counterpart, Diabetes WA. However, Diabetes WA’s submission acknowledges the successful application of the VLCD in the DiRECT study, and says this more intensive approach may be appropriate if previous weight loss attempts have been unsuccessful. But Diabetes WA does not see the broader application of such an intensive intervention as realistic in terms of the health system budget. They assert that many people participating in calorie restriction studies are unable to sustain the dietary intervention, despite intensive support.<sup>87</sup> However, a review of adherence to diets from 2017 states that ‘adherence is surprisingly high with very low energy diets’.<sup>88</sup> In Professor Taylor’s six-month trial of the VLCD, 29 of the 30 participants remained in the study.<sup>89</sup> In the two-year DiRECT study, while around 78% of participants in the intervention group attended their 24-month appointment, only 24 per cent had maintained a greater than 10kg at the end of two years.<sup>90</sup>

The Australian Medical Association (WA) (AMA (WA)) acknowledged the promising evidence around calorie restrictive diets and remission, but did not necessarily see it as achievable or sustainable. Around half of the GPs the AMA (WA) surveyed<sup>91</sup> had advised their patients to follow a restrictive or low calorie diet, but the AMA (WA) said there was confusion around conflicting advice, but did not outline any way in which they assist practitioners in this regard.<sup>92</sup>

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85 Royal Australian College of General Practitioners, *General practice management of type 2 diabetes: 2016–2018*, RACGP, East Melbourne, Vic, 2016, p. 38.

86 WAPHA provided screenshots of several relevant pathways in the diabetes stream from the HealthPathways portal, since access to the portal is restricted to health professionals.

87 Submission 9, Diabetes WA, pp. 9–10.

88 Alice Gibson and Amanda Sainsbury, ‘Strategies to Improve Adherence to Dietary Weight Loss Interventions in Research and Real-World Settings’, *Behavioural Sciences (Basel)*, vol. 7, no. 44, September 2017, p. 3.

89 Sarah Steven et al., ‘Very Low-Calorie Diet and 6 Months of Weight Stability in Type 2 Diabetes: Pathophysiological Changes in Responders and Nonresponders’, *Diabetes Care*, vol. 39, no. 5, May 2016, p. 808–815.

90 Michael Lean et al., ‘Two-year results of the randomised Diabetes Remission Clinical Trial (DiRECT)’, presented at the DUK Professional Conference, 6 March 2019, p. 14. Accessed from <[www.directclinicaltrial.org.uk](http://www.directclinicaltrial.org.uk)>

91 The AMA (WA) consulted with more than 60 Perth and regional GPs to inform its submission.

92 Submission 25, Australian Medical Association (WA), p. 5.

The Dietitians Association of Australia (DAA) and Australian Diabetes Educators Association (ADEA) accept that meal replacement products provide nutritional adequacy and are considered safe and effective for the management, and even potential remission, of type 2 diabetes for up to 12 weeks.<sup>93</sup> They do not support the long-term use of very low energy diets because they say the impact of meal replacement products on reducing diabetes medication has not been directly reviewed. This statement was referenced to the Diabetes UK *Evidence-based Nutrition Guidelines for the Prevention and Management of Diabetes*, but of course Diabetes UK has been a supporter of the DiRECT trial and is excited by the latest two-year results.<sup>94</sup>

## Finding 2

Western Australian and Australian bodies which advise patients on managing type 2 diabetes have not endorsed a very low calorie diet as a management option, despite international evidence and acknowledgement of its success in lowering blood glucose levels.

### ***The low carbohydrate diet is being used despite not being officially endorsed***

There is more support for a low carbohydrate approach than for the VLCD in Australia, possibly because it has been discussed and debated in the public realm for longer.<sup>95</sup> However, Diabetes Australia and Diabetes WA still recommend that type 2 diabetics fill a quarter of their plate (or more, if following the Australian Dietary Guidelines) with carbohydrates – albeit low GI where possible.<sup>96</sup>

This is much higher than the low carbohydrate diet recommended by Dr Unwin and Virta. For example, the carbohydrate content of the one-day meal plan sample provided in the *Food choices for people with diabetes* factsheet consists of: two slices of wholegrain toast at breakfast (in addition to rolled oats and fruit), two slices of wholegrain bread or a grainy roll at lunch and at dinner either a cup of cooked pasta, two-thirds of a cup of low GI rice, or a cup of sweet potato or corn or chickpeas/kidney beans. The low-carb approach is to drastically reduce or eliminate foods like bread, pasta and rice.

The message that it is acceptable for someone with type 2 diabetes (or metabolic syndrome or pre-diabetes) to eat carbohydrates so long as they are low GI has been questioned,<sup>97</sup> since it does not take account of the different way in which different people metabolise the same foods. A study from 2008 compared the effect of a low GI diet, in which low GI carbohydrates made up 44% of daily energy intake, with a low carbohydrate ketogenic diet, in which carbohydrates accounted for 13% of daily energy intake. While blood glucose levels

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93 Submission 35, Dietitians Association of Australia/Australian Diabetes Educators Association, p. 11.

94 Diabetes UK, *Research spotlight – putting Type 2 diabetes into remission*, accessed 14 March 2019, <<https://www.diabetes.org.uk>>

95 For example, In November 2014 the ABC science program Catalyst investigated the science behind the low carb diet and whether it was just another fad; celebrity chefs have also put low carb diets in the public eye, sometimes controversially; and several documentary films about sugar and processed foods have also received a wide audience.

96 Diabetes Australia, *Food choices for people with diabetes*, NDSS, June 2016.

97 For example, see Paolo Magni et al., 'Perspective: Improving nutritional guidelines for sustainable health policies: Current status and perspectives', *Advances in nutrition*, vol. 8, no. 4, July 2017; Jennifer Elliott, *Baby boomers, bellies and blood sugars*, second edition, Jeburra Press, Bega, New South Wales, 2016, pp. 48-9.

were reduced on both diets, the low carbohydrate diet produced greater improvement, leading the authors to conclude that ‘the beneficial effect of “low-glycemic” diets could be augmented by further reduction of the absolute amount of carbohydrate’.<sup>98</sup>

Professor Jennie Brand-Miller, who played a key role in developing the glycaemic index and who heads the Sydney-based Glycemic Index Foundation, says that some people support the glycaemic index and some do not.

*But it is very clear that the dietary guidelines for diabetes in the UK, the US and in Europe in general—they all mention the glycaemic index of foods and the fact that it can provide a further benefit beyond just looking at carbohydrate alone.*<sup>99</sup>

While Diabetes Australia released a position paper on the low carb diet in August last year, it still does not actively promote the diet. Visitors to their website who click on ‘Managing type 2’ diabetes will be directed to advice on what to eat. The initial advice is to follow the Australian Dietary Guidelines, which recommends around a third of food intake be comprised of carbohydrates.

Type 2 sufferers interested in the low carbohydrate diet can, on searching, be directed to the position statement, which acknowledges that ‘there is reliable evidence that lower carb eating can be safe and useful in lowering average blood glucose levels in the short term (up to 6 months)’, but that low carb eating does not work for everybody. Diabetes Australia strongly encourages people thinking of trying the diet ‘to speak with a dietitian, their doctor or other health professional to obtain individualised dietary advice’.<sup>100</sup>

Clearly, type 2 diabetics should be under medical supervision; however, seeking a GP’s advice on whether to restrict carbohydrates may lead to either frustration or self-management through the variety of ‘pay as you go’ websites available. Indeed, it was just this experience of a patient seeking her own remedy that led Dr Unwin to become so committed to the role low carbohydrate diet has in responding to patients and effectively treating the disease.

Until 2012, Dr Unwin had been telling patients that type 2 diabetes was a progressive, deteriorating condition. In 25 years of looking after the same population in Southport, he never saw diabetes put into remission, no matter what drugs he gave his patients. ‘What I observed was them getting sicker and sicker and fatter and fatter.’ In that time diabetes increased eight-fold. He found it so depressing that he passed the whole portfolio of diabetes to his practice partner.

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98 Eric C Westman et al., ‘The effect of a low-carbohydrate, ketogenic diet versus a low-glycemic index diet on glycemic control in type 2 diabetes mellitus’, *Nutrition and Metabolism*, vol. 5, no. 36, December 2008.

99 Professor Jennie Brand-Miller, Glycaemic Index Foundation, *Transcript of Evidence*, 17 October 2019, p. 1.

100 Diabetes Australia, *Position Statement: Low carbohydrate eating for people with diabetes*, August 2018, p. 12.

Dr Unwin credits a particular patient with opening his mind to the possibility of treating type 2 diabetes with a low carbohydrate diet. He did not recognise the patient when she visited his surgery because she had lost so much weight. She told him her blood sugar level was normal and she was no longer taking medications. She said there were thousands of others doing the same as her with the support of the online diabetic community diabetes.co.uk (part of Diabetes Digital Media).

Diabetes WA's website and materials do not refer to a low carbohydrate diet or discussing such a diet with a health professional. Healthy eating advice is in the form of the *Food choices for people with diabetes* factsheet, which, as outlined above, sets out suggested eating plans (such as toast and porridge for breakfast) – despite Diabetes WA arguing that it does not want to promote or encourage a 'one size fits all' approach or a 'diabetes diet'.

The Dietitians Association of Australia and Australian Diabetes Educators Association take the same cautious approach as Diabetes Australia and Diabetes WA, saying a low carb diet may be suitable for some individuals and may or may not lead to a reduction in diabetes medication, but that it may not be an appropriate solution for all individuals with type 2 diabetes.<sup>101</sup>

Scientists within the CSIRO's nutrition and health program (part of the Adelaide-based Health and Biosecurity department) have spent many years investigating the low carb diet for weight loss and type 2 diabetes management. CSIRO principal research scientist Professor Grant Brinkworth headed the team which produced the *CSIRO Low-Carb Diet Book* (2017), a commercial publication which took the low carb research and packaged it into a format that was accessible to the general public.<sup>102</sup> While they regard it as safe and effective, Professor Brinkworth cautions that not all low-carb diets are equal and anyone undertaking the diet who has diabetes or any other chronic disease should do so in consultation with a health professional.<sup>103</sup>

In the UK, the NICE guidelines simply state that doctors should encourage 'high-fibre, low-glycaemic-index sources of carbohydrate in the diet',<sup>104</sup> although in a very recent development they have endorsed Dr Unwin's sugar equivalent infographics as a resource to complement NICE guidance.<sup>105</sup> Diabetes UK's 2018 nutrition guidelines for diabetes say that low carbohydrate diets have been controversial, but that overall evidence suggests they are safe and effective over the short term for weight loss. Long term side effects were unknown. The guidelines note that the Scientific Advisory Committee on Nutrition (SACN)<sup>106</sup> is investigating the role of low carb diets for type 2 diabetics and is due to report in 2020.

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101 Submission 35, Dietitians Association of Australia/Australian Diabetes Educators Association, p. 10.

102 CSIRO has also translated other scientifically tested diet programs into step-by-step guides which offer a prescriptive, energy-controlled eating plan e.g. the Total Wellbeing Diet and the Total Wellbeing Diet Online programs.

103 Professor Grant Brinkworth, CSIRO, *Briefing*, 28 September 2018.

104 National Institute for Health and Care Excellence, *Type 2 diabetes in adults: management*, May 2017, accessed 26 February 2019, <<https://www.nice.org.uk/guidance>>

105 National Institute for Health and Care Excellence, *Type 2 diabetes in adults: management – tools and resources*, 28 March 2019, accessed 2 April 2019, <<https://www.nice.org.uk/guidance>>

106 SACN advises Public Health England and other UK government organisations on nutrition and related health matters.

Diabetes UK is part of the SACN joint working group, with NHS England. Current government advice, known as the Eatwell Guide, is similar to the Australian Dietary Guidelines, recommending that 33 per cent of calorie intake be obtained from carbohydrates. The Australian Dietary Guidelines describes this section as 'grain (cereal) foods' and places potatoes in the vegetables section, while the Eatwell Guide puts potatoes in the category called 'starchy carbohydrates'.<sup>107</sup>

Diabetes UK's deputy head of care Douglas Twenefour said that the SACN investigation was in response to public pressure to validate the low carb diet. Diabetes UK is prepared to suggest it as one of a number of diets for type 2 diabetics, but says that the diet is only better than others in the first six months. It also has concerns about the increased risk of cardiovascular disease from following the diet long-term, due to a higher intake of animal fats.<sup>108</sup> As explained in one journal article describing an Australian-New Zealand study, 'full-fat versions of animal fat-containing whole foods are not purposefully minimised in an LCHF [low carb high fat] diet' and, as a result, 'the saturated fat intake can exceed the maximum 10% of total energy intake threshold set by the National Australian and New Zealand Nutrient Reference Values (NRV) guidelines'. However, this study found that it was possible to adopt the LCHF diet while keeping saturated fat intake around 10% of total energy threshold.<sup>109</sup> Another study found that while the percentage of saturated fat intake increase for a study group on a low carb diet, the number of grams consumed remained much the same as before they started the diet. Since they consumed fewer calories from carbohydrates, fat accounted for a higher proportion of their diet.<sup>110</sup>

While the UK diabetes bodies may be cautious about whole-heartedly adopting low carb, GPs in the UK seem to be more receptive. As Dr Unwin notes in his submission, other UK surgeries are now adopting the low carb approach; and the Royal College of General Practitioners (RCGP) has begun offering an e-learning course (which Dr Unwin co-wrote) to all UK GPs.

The joint American Diabetes Association (ADA) and European Association for the Study of Diabetes (EASD) position statement on management of hyperglycaemia in type 2 diabetes, updated in October 2018, recommends that 'an individualized program of MNT (Medical Nutrition Therapy) should be offered to all patients', and supports low carbohydrate diets as a safe and effective option.

In women with gestational diabetes, a lower carbohydrate intake had resulted in a significant decrease in medication requirements, according to a submission from the Czech Republic. This was important because women on medications were perceived as higher risk

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107 NHS, *Eat well – The Eatwell Guide*, page last reviewed 28 January 2019, accessed 25 February 2019, <<https://www.nhs.uk/live-well/eat-well/the-eatwell-guide/>>

108 Mr Douglas Twenefour, Diabetes UK, *Briefing*, 29 January 2019.

109 Caryn Zinn, Amy Rush and Rebecca Johnson, 'Assessing the nutrient intake of a low carbohydrate, high-fat (LCHF) diet: a hypothetical case study design', *BMJ Open*, 2018, 8, pp. 1, 6.

110 Cynthia W Shih, Michelle E Hauser, Lucia Aronica, Joseph Rigdon, Christopher D Gardner, 'Changes in blood lipid concentrations associated with changes in intake of dietary saturated fat in the context of a healthy low-carbohydrate weight-loss diet: a secondary analysis of the Diet Intervention Examining The Factors Interacting with Treatment Success (DIETFITS) trial', *The American Journal of Clinical Nutrition*, vol. 109, no. 2, 1 February 2019, pp. 433-441.

by obstetricians, and often experienced higher rates of birth induction before term, caesarean sections and other interventions. The Czech Diabetology Society guidelines for gestational diabetes had been amended to reflect the benefits of following a low carbohydrate diet.<sup>111</sup>

### Finding 3

Western Australian and Australian bodies which advise patients on managing type 2 diabetes have not officially endorsed a low carbohydrate diet as a management option, despite considerable evidence from the United Kingdom in particular that it can lower blood glucose levels.

#### ***The Australian Dietary Guidelines are still promoted as suitable for type 2 diabetics***

Advocates of the low carb approach and of the VLCD tend to acknowledge the value of each and would be happy for people with type 2 diabetes to use whichever approach worked best for them.<sup>112</sup> What they have little patience for is the promotion of dietary advice from official bodies which they see as outdated, along with what they see as inadequate promotion of alternative management strategies.

Many contributors to this inquiry have expressed considerable frustration that people with type 2 diabetes are still referred to the Australian Dietary Guidelines (ADG). Whether or not they agree that the guidelines are suitable for the general healthy population (and some question that), the prevailing view is that they are not suitable for diabetics.<sup>113</sup> As noted earlier, the Diabetes WA and Diabetes Australia websites tell website visitors with type 2 diabetes to use the ADG as a starting point for healthy eating. The advice about which foods and how much of them to eat as advised by the ADG is reproduced in various forms, such as the *Food choices for people with diabetes* sheet. This is despite a statement in the ADG that the guidelines are not suitable for people with a medical condition. A number of contributors noted this anomaly.<sup>114</sup>

The WA Department of Health agrees that the ADG should not be used for people with diabetes, and points out, as others have, that they do not apply to people with a medical condition who need special dietary advice.

*... the ADG do not consider the portion size of carbohydrate containing food groups and how this may impact on the individual's blood glucose level, which will vary for each individual based on their underlying insulin production and level of insulin resistance.*

*As with all health professionals, Accredited Practicing Dietitians (APDs) and Credentialed Diabetes Educators (CDEs) will base their MNT [medical nutrition therapy] practice and advice on current evidence, tailored to match*

111 Submission 34, Dr Hana Krejčí. General University Hospital, Prague.

112 Dr David Unwin, *Briefing*, 31 January 2019; Professor Roy Taylor, *Briefing*, 4 February 2019.

113 Submission 11, Dr Sanjeev Balakrishnan; Submission 15, Ms Jennifer Elliott; Submission 18, Ms Liz Mountford; Submission 19, Metabolic Health Solutions; Submission 27, Dr Joe Kosterich; Submission 35, Dietitians Association of Australia/Australian Diabetes Educators Association.

114 Submission 11, Dr Sanjeev Balakrishnan; Submission 18, Ms Liz Mountford; Ms Melanie Voevodin Letter dated 20 November 2018.

*individual preferences and needs. This necessary, and appropriate, person-focused approach does not align well with the 'one size fits all approach' of the ADG.<sup>115</sup>*

Since the Department of Health provides very limited information about managing types 2 diabetes on its webpage, instead referring people to Diabetes WA, it should address this misalignment of views over the guidelines.

#### **Finding 4**

The Department of Health and Diabetes WA are not aligned in regard to the suitability of the Australian Dietary Guidelines for type 2 diabetics.

#### **Recommendation 2**

The Department of Health and Diabetes WA should consult with one another to ensure they are providing consistent advice in regard to the Australian Dietary Guidelines. Diabetes WA should align with the Department of Health position that the Australian Dietary Guidelines are not suitable for people with type 2 diabetes.

Diabetes Australia released a position statement titled 'No one-size-fits-all approach to diet' in November 2014, acknowledging that while the ADG 'are a very good guide to healthy eating for the entire population', for people with diabetes or at high risk of developing type 2 diabetes individualised, tailored advice was preferable.<sup>116</sup>

This begs the question as to why they promote it on other parts of the website. The belief that there is no one-size-fits-all diet is also the reason given for not promoting specific diets such as low carb.

Diabetes Australia's position statement on the low carb diet recommends that 'people seek the advice of a supportive health care team before starting a low carb eating plan', including the advice of an accredited practising dietitian (APD). Seeking tailored advice from healthcare professionals seems to be the advice that accompanies any dietary information offered by Diabetes Australia and Diabetes WA. It is also the advice of the Dietitians Association of Australia (DAA).<sup>117</sup> As pointed out by several contributors, the DAA does not have any management guidelines for type 2 diabetes. Its advice is aligned to Diabetes Australia, which references the ADG. The RACGP *General practice management of type 2 diabetes: 2016-18* guidelines and the dietary information on HealthPathways are also based on the ADG.

If dietitians and other healthcare professionals are being called upon to offer individualised dietary advice to diabetics, whichever route they take for official management guidance will lead them to the ADG.<sup>118</sup> With so much evidence of success from other dietary approaches

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115 Dr Andrew Robertson, Department of Health, Letter, 17 December 2018, p. 3.

116 Diabetes Australia, *National position statement: No one-size-fits-all approach to diet*, November 2014, accessed 14 January 2019, <<https://static.diabetesaustralia.com.au/>>

117 Submission 35, Dietitians Association of Australia/Australian Diabetes Educators Association, p. 5.

118 Ms Melanie Voevodin, email (attachment), 20 November 2018; Submission 28, closed submission.



and assertions that the ADG are not based on the latest evidence or sound evidence,<sup>119</sup> it is little wonder practitioners are keen to suggest alternatives. But going against the sanctioned guidelines and offering strategies that have not been accepted by the professional associations can be risky. Several submissions expressed concern that health professionals who had offered patients a low carb diet had been deregistered or silenced.<sup>120</sup> New York professor Richard Feinmann was aware of cases in Australia:

*The disconnect between the record of success of low carbohydrate strategies and the negative response of government and private health organizations stands as a major barrier to our ability to confront the epidemics of diabetes and obesity. The cost in money, loss of intellectual honesty and most of all, patient suffering is immense. The problem has become extreme in Australia and several other countries where professional organizations have attacked health providers personally and professionally.*<sup>121</sup>

And closer to home, WA GP Joe Kosterich mentioned the same issue:

*Our dietary guidelines have been based on 'sloppy science'. Yet rather than admit error, public health has blamed the population for following its advice. It has blamed the food industry for providing the low fat foods that it told people to eat. Worst of all it has attacked those who have sought to help citizens. It has pilloried those who offer low carbohydrate diets.*<sup>122</sup>

Patients are at liberty to do their own research – and they do, as evidenced by the subscribers to diabetes.co.uk and several who made submissions. But it seems that they will have difficulty finding a GP or dietitian who will a) be aware of alternative dietary approaches and b) be willing to prescribe them. As Perth GP Patrick Garratt notes:

*As a GP, it is actually quite difficult to then put out a new message because I am at some risk when I am introducing you to very, very good research because it is not based on the current dietitian's guidelines. So there are difficulties there.*<sup>123</sup>

One Perth doctor who has ignored the guidelines and followed Dr Unwin's example is Dr Sanjeev Balakrishnan.

*Type 2 diabetics are advised to consume low-fat, high-carbohydrate meals to 'feed' their glucose-lowering medications in order to prevent hypoglycaemia.*

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119 Dr Patrick Garratt, *Transcript of Evidence*, 20 June 2018; Submission 2, Mr Ronald Bareis; Submission 15, Ms Jennifer Elliott; Submission 27, Dr Joe Kosterich; Ms Melanie Voevodin, email (attachment), 20 November 2018.

120 Submission 15, Ms Jennifer Elliott; Submission 27, Dr Joe Kosterich; Submission 26, Professor Richard Feinman. Gary Fettke, an orthopaedic surgeon from Tasmania who was tired of amputating the limbs of diabetics, offered them the low carb diet and was banned by the Australian Health Practitioner Registration Agency (AHPRA) from giving advice about nutrition. The ban was overturned in September 2018.

121 Submission 26, Professor Richard Feinman, p. 1.

122 Submission 27, Dr Joe Kosterich, p. 3.

123 Dr Patrick Garratt, *Transcript of Evidence*, 20 June 2018, p. 5.

*This is why I have taken it upon myself to treat these diabetics without any help from the above-mentioned resources.<sup>124</sup>*

The ambition of those promoting the low calorie and low carbohydrate diets is to have as few type 2 diabetics relying on medication for as long as possible. However, for many GPs it may be simpler to write a prescription for metformin than to support a patient through what may be perceived as an onerous diet. Diets have a reputation for being difficult to adhere to and hard to sustain.<sup>125</sup> As Professor Brinkworth notes, if doctors sense that it will be difficult to make a patient follow a diet, they will put them straight on medication. It was known anecdotally that there was a propensity to put people with pre-diabetes straight on to medication because they believed they were going to get diabetes anyway.<sup>126</sup>

Fearing (or assuming) that a patient will be unable to keep to a diet should not be a reason for not offering a dietary alternative to drugs. The fact that not all of the subjects of the VLCD and low carb diets were able to lower their blood glucose levels sufficiently to stop medication is also not sufficient reason for not providing the diets as an option. Many people – at least half – have successfully ceased medication and in some cases insulin. While some patients may be content to take medication without adjusting their lifestyle, many are not, and many fear the often inevitable progression to insulin. At least one contributor to the inquiry expressed anger at not being given advice that could assist management of the condition – and, in fact, being given advice that apparently made it worse.<sup>127</sup> Sufferers need to feel assured that they are being offered every option, and at present that is not the case.

Healthcare professionals providing advice to type 2 diabetics need to be: a) better informed about the efficacy of the dietary interventions; b) assured that they can offer the alternatives without fear of reprisals from their member organisations; and c) supported by other healthcare professionals and educators to assist patients in sustaining the diet. There appears to be enough reliable evidence that these dietary interventions work for many people, and they should be offered. The less prescriptive self-management education approach, which Diabetes WA favours, is equally as important and will be discussed later in this chapter.

### Finding 5

There is convincing evidence to support the use of dietary interventions such as the very low calorie diet and the low carbohydrate diet in the treatment of people with type 2 diabetes.

### Recommendation 3

The Department of Health ensure that guidelines for the management of type 2 diabetes reflect the success of dietary interventions – such as the very low calorie diet and the low carbohydrate diet – in treating the disease. These approaches should be formally offered as management options.

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124 Submission 11, Dr Sanjeev Balakrishnan, p. 3.

125 Submission 9, Diabetes WA; Submission 25, Australian Medical Association (WA); Professor Timothy Davis, *Transcript of Evidence*, 12 September 2018.

126 Professor Grant Brinkworth, CSIRO, *Briefing*, 28 September 2018.

127 Submission 28, closed submission.

**Recommendation 4**

The Department of Health commence a campaign to ensure that healthcare professionals, and general practitioners in particular, are aware of the alternative (dietary) approaches for treating type 2 diabetes.

**Bariatric surgery is promoted as a cost-effective treatment**

Bariatric surgery has been proven to offer metabolic benefits to people suffering from type 2 diabetes, to the point that they are able to cease medication. A study from as early as 1995 found that a specific type of gastric bypass surgery could reverse type 2 diabetes in 80 per cent of patients.<sup>128</sup> More recent studies report similarly favourable results.<sup>129</sup>

In 2011 the International Diabetes Federation (IDF) released a position statement on bariatric surgery for obese type 2 diabetes patients which supports it as a cost-effective and appropriate therapy. It recommended it be incorporated into type 2 diabetes treatment algorithms and that national bariatric surgical registries be established.<sup>130</sup>

Diabetes Australia has taken a similar position. Its position statement on weight loss surgery says that, 'gastric banding and bypass surgery are cost effective treatments for obesity and diabetes, with the potential to reduce future health expenditure by preventing disease, disability and death'.<sup>131</sup>

Diabetes Australia says that for people with type 2 diabetes, bariatric surgery may be an appropriate treatment if they:

- are obese (BMI of 35 or over)
- have tried lifestyle interventions and medical treatments without success
- are aged over 18 years
- are fit enough to undergo surgery and willing to commit to ongoing follow-up care
- are able to maintain lifestyle changes after surgery.<sup>132</sup>

The position statement also says that bariatric surgery may be appropriate for people who have not yet been diagnosed with type 2 diabetes but are at high risk—specifically, very obese adults with a BMI over 40, or those with a BMI over 35 and another obesity related medical condition. Diabetes WA also supports bariatric surgery for those who have not

128 WJ Pories et al. 'Who Would Have Thought It? An Operation Proves to Be the Most Effective Therapy for Adult-Onset Diabetes Mellitus.' *Annals of Surgery* vol. 222, no. 3, 1995, pp. 339–352.

129 See, for example, University of Minnesota, *Discoveries in Diabetes*, Fall, 2013; G Mingrone et al., 'Bariatric—metabolic surgery versus conventional medical treatment in obese patients with type 2 diabetes: 5 year follow-up of an open-label, single-centre, randomised controlled trial', *The Lancet*, 386, 2015, vol. 386, pp. 964–973.

130 JB Dixon et al., 'Bariatric surgery: an IDF statement for obese Type 2 Diabetes', *Diabetic Medicine*, 28, 2011, p. 628.

131 Diabetes Australia, *Weight Loss Surgery (Bariatric Surgery) and its Use in Treating Obesity or Treating and Preventing Diabetes*, December 2011.

132 *ibid.*

responded to pharmacotherapy or a very low calorie diet, specifying that a multidisciplinary team should be involved.<sup>133</sup>

The WA Department of Health (DoH) eligibility criteria for bariatric surgery for public patients also specifies a BMI of 40 or more, or 35 if an obesity related morbidity (e.g. type 2 diabetes) is present. The other criteria are also similar to those listed by Diabetes Australia. The DoH also advises that if patients 'cannot achieve some significant weight loss by conservative measures (12 months) then they will probably not be able to comply with the post-operative advice to achieve real long term benefit from the surgery'.<sup>134</sup> This reflects a common requirement for obese patients to lose some weight prior to surgery. However, it is also a reference to the lifestyle and dietary changes that will need to be adhered to after the operation.

There are three main surgical procedures to reduce weight and/or maintain weight loss:

- Adjustable gastric band, which is placed around the upper part of the stomach to create a small pouch and induce a feeling of fullness sooner
- Partial (sleeve) gastrectomy, which removes two-thirds of the stomach
- Gastric bypass (Roux-en-Y) & biliopancreatic diversion, which removes part of the stomach and repositions parts of the small intestine.

According to consultant surgeon Professor Jeffrey Hamdorf, who is also Professor of Surgical Education at the University of Western Australia, the gastric band procedure is the least useful for managing diabetes and is performed less and less. He said it required a lot of follow-up and consequently was not a good option for the public health system. Sleeve gastrectomy was the most common procedure, accounting for 70 per cent of bariatric surgery cases in Australia.<sup>135</sup> The gastric bypass was described as being the most complicated with greater impact on the body metabolically and physiologically.<sup>136</sup> The differences between sleeve gastrectomy and gastric bypass in terms of the metabolic effect on diabetes were not substantial, Professor Hamdorf said. Studies had shown that patients who had the simpler sleeve gastrectomy did very well, with more than half ceasing insulin or ceasing/reducing their oral medications within 12 months.<sup>137</sup>

There has been a significant increase in the amount of bariatric surgery performed in Australia over the past few years. The Bariatric Surgery Registry<sup>138</sup> records a more than three-fold increase in the past three years, from 16,577 procedures recorded at the end of June 2016 to 51,277 procedures at the end of June 2018.<sup>139</sup> The increase can be attributed

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133 Submission 9, Diabetes WA.

134 Joondalup Bariatric Services, *Do I Qualify for Surgery?*, accessed 21 February 2019, <<http://www.joondalupbariatricservices.com.au/wa-weight-loss-surgery.asp>>

135 Professor Jeffrey Hamdorf, *Transcript of Evidence*, 31 October 2018, p.3.

136 *ibid.*, p.5.

137 *ibid.*, p.6.

138 The Bariatric Surgery Registry measures outcomes for patients undergoing bariatric surgery across surgical practices in Australia. Most (but not all) hospitals and surgeons contribute to the data.

139 Bariatric Surgery Registry, *Bariatric Surgery Registry Sixth Annual Report: 2017/18*, Monash University, p. 8.

in part to the decrease in morbidity and mortality due to laparoscopic (keyhole) procedures. What was once viewed as a risky procedure is now considered safe and minimally invasive, and is viewed by proponents to be the best option for sustainable weight loss.<sup>140</sup> In WA there were 5575 procedures in 2017-18, almost 2500 more than in 2013-14 (see Table 2.1).

**Table 2.1: The proportions of bariatric surgery performed in WA's private and public hospitals for the past five years.** <sup>141</sup>

Financial Year	Private Hospitals		Public System		Total
	Separations	%	Separations	%	
2013-14	2,826	90.6%	293	9.4%	3,119
2014-15	3,462	91.1%	337	8.9%	3,779
2015-16	4,307	89.0%	531	11.0%	4,838
2016-17	4,678	90.0%	521	10.0%	5,199
2017-18	5,068	90.9%	507	9.1%	5,575

The increase in bariatric surgery has occurred mainly in private hospitals, where 90 per cent of procedures are undertaken (see Table 2.1). This is despite the cost to the individual. However, access to bariatric surgery in the public system is very limited. While there are no out of pocket expenses for admission and surgery as a public patient, there is a much longer wait time. The waiting time just to be seen is believed to be around five years,<sup>142</sup> although the DoH did not provide figures that could confirm this. The DoH advised that the median wait time following consultation was 363 days for a bariatric surgical procedure in 2017–2018 – an increase from 82 days in 2013-14.<sup>143</sup> In the private system, surgery may be performed six to eight weeks following the initial consultation, allowing time for the recommended pre-surgery investigation and preparation.<sup>144</sup>

It has been suggested, however, that the wait list is not representative of the number of people who wish to have the surgery. In a media report in February 2018, the Australian Medical Association (AMA) and leading bariatric surgeon Alan Thomas said the full extent of the wait list for publicly funded bariatric surgery was masked by limited access to specialists who carry out assessments. Patients were apparently being rejected from wait lists for publicly funded surgery because of a stringent set of requirements, which was said to be an attempt to keep numbers low. Only the most extreme cases were considered. This was putting more pressure on the private system.<sup>145</sup>

AMA (WA) president Dr Omar Khorshid said many doctors were so frustrated with the lack of access to public bariatric surgery that they gave up trying to get patients on a wait list. Dr

<sup>140</sup> Professor Jeffrey Hamdorf, *Transcript of Evidence*, 31 October 2018, p. 3; Ms Carol Rolston, *Transcript of Evidence* 21 November 2018, p.2. Mr Ahmed, Mr Marco Adamo, Dr Alex Miras, *Briefing*, 29 January 2019.

<sup>141</sup> Dr James Williamson, Department of Health, additional Information provided at hearing, 28 November 2018.

<sup>142</sup> Professor Jeffrey Hamdorf, *Transcript of Evidence*, 31 October 2018, p. 8.

<sup>143</sup> Dr James Williamson, Department of Health, additional Information provided at hearing, 28 November 2018.

<sup>144</sup> Professor Jeffrey Hamdorf, *Transcript of Evidence*, 31 October 2018, p 9.

<sup>145</sup> Regina Titilius, 'Obese patients excluded from WA public hospital surgery lists', *PerthNow*, 18 February 2018.

Khorshid said older patients were known to 'dip into superannuation to cover private surgery because of the 55-year cut-off age for public surgery'.<sup>146</sup>

The cost of bariatric surgery in the private system is significant. One figure quoted was \$22,000 to \$25,000.<sup>147</sup> Bariatric surgery is only covered by the top tier health insurance policies. Patient out-of-pocket expenses can vary according to the procedure, and also according to what ancillary therapies are engaged to support the surgery. Information on one Perth clinic website indicates the out-of-pocket costs associated with the surgeon and the assistant for a sleeve gastrectomy to be \$3900, which does not include any allied health services such as clinical psychology, dietetics, or exercise physiology. Another clinic quotes an out-of-pocket expense of \$4400, which covers the surgery as well as access to support services for 18 months post-surgery.

Rationing in the public health system has seen a growing trend for people to access their superannuation to pay for private surgery, including bariatric surgery. More than \$210 million in superannuation funds was released on compassionate grounds in 2016-17, with bariatric surgery the number one reason given for withdrawals. It is estimated that one in ten bariatric surgeries performed are funded by people drawing on their superannuation.<sup>148</sup>

Most private clinics offering bariatric surgery readily advertise this as an option for patients who may otherwise not afford the surgery. However, access to early release of funds is currently under review by the Federal Government. Early consultation revealed that the drivers of the increase in applications for release included:

- long waiting list for treatment in the public health system (including for bariatric surgery)
- certain treatments being pushed to the top tier of health insurance cover
- increasing rates of obesity requiring intervention (e.g. bariatric surgery)
- a greater awareness, including through intermediaries, of the possibility of using superannuation to pay for treatments.<sup>149</sup>

There are a number of draft proposals in the latest paper. An obvious concern is that people using superannuation funds will not have these funds available to support themselves later.

There is an argument to be made that if accessing surgery significantly changes a person's future health needs and renders them less of a burden to the public health system in later years, the public health system should be prepared to pay for the surgery.

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146 Regina Titelius, 'Obese patients excluded from WA public hospital surgery lists', *PerthNow*, 18 February 2018.

147 Professor Jeffrey Hamdorf, *Transcript of Evidence*, 31 October 2018, p. 11.

148 Diabetes Queensland, 'Raiding superannuation to pay for obesity surgery could be stopped', *Diabetes Queensland*, 3 April 2018, accessed 22 February 2019, < <https://www.diabetesqld.org.au> >

149 Treasury, *Review of Early Release of Superannuation Benefits*, Commonwealth of Australia, November 2018, p. 6.

### Who should have bariatric surgery?

Given the success rate of bariatric surgery in putting diabetes into remission, should more people with type 2 diabetes and even with pre-diabetes be treated in this way? According to surgeons here and in the UK, the surgery pays for itself (in terms of other health cost savings) within two years. (For further analysis of bariatric surgery costs, see chapter five.) On this basis, it might be tempting to see it as a quick fix which, although expensive up-front, pays dividends in later years. But not everyone is suited to bariatric surgery – and even those that have it need to put in place the same types of lifestyle interventions as those who do not have surgery and are seeking to combat type 2 diabetes.

Guidelines to standardise the selection of surgical candidates have been developed by a group of international clinicians and scholars, convened by leading diabetes organisations.<sup>150</sup> An algorithm was developed which integrates medical and surgical therapies in the treatment of type 2 diabetes.<sup>151</sup> A similar algorithm was developed by the Australian Obesity Management Algorithm group, convened by the Australian Diabetes Society. The algorithm, reproduced in Appendix 8, is used to guide GPs in the management of obesity and type 2 diabetes.<sup>152</sup> It shows that for people with a BMI of less than 40 with no obesity-related complications, lifestyle interventions such as low energy diets should be prescribed. For those who have obesity related complications such as diabetes, weight loss strategies such as low energy diets are still indicated. Although not shown in the algorithm, lifestyle interventions post bariatric surgery are also required.

Apart from meeting the physical and medical requirements (for example, an anaesthetic can be safely performed, wounds will heal properly), people requesting bariatric surgery need to be assessed for psychological complications. According to clinical psychologist Carol Rolston, who works with bariatric surgeons as part of a team approach to care, about half of the people that a bariatric surgery team sees have a lifetime history of psychiatric illnesses such as depression and anxiety, and a quarter are on some form of medication for mental health issues. Their suitability for surgery would depend on how well their condition was managed.<sup>153</sup> Diabetes WA health services operations manager Sophie McGough regarded people with complex psychosocial issues as prime candidates for bariatric surgery, since the ability to eat well and exercise was often beyond their control.

*... there are lots of people who are trying really hard to lose weight but it is just not working for them, for a variety of reasons. I cannot count on my hand the number of times that people have talked about sexual abuse being a big part of their weight-gain story and every time they try to lose weight, it is a protective mechanism. They eat again to protect themselves because they do*

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150 The American Diabetes Association; International Diabetes Federation; Diabetes UK; Chinese Diabetes Association; Diabetes India.

151 Rubino, F et al, 'Metabolic Surgery in the Treatment Algorithm for Type 2 Diabetes: A Joint Statement by International Diabetes Organisations', *Diabetes Care*, vol. 39, June 2016, p. 872.

152 Professor Jeffrey Hamdorf, *Transcript of Evidence*, 31 October 2018, p. 1.

153 Ms Carol Rolston, clinical psychologist, *Transcript of Evidence*, 21 November 2018, p. 1.

*not want to appear attractive to men ... Maybe gastric banding or gastric sleeve probably would be the answer for someone like that.*<sup>154</sup>

Ms Rolston said potential bariatric patients needed to demonstrate that they had tried other means of weight loss and that they would be able to adhere to lifestyle changes after the

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If someone goes, 'Oh, I've got 20 kilos to lose. I'm not going to bother with diet. I'll just go and have surgery', then that is not how it works. We actually want people to be able to demonstrate not just that they have been on diets, but how long they have been on that diet for, what the outcome was and what was the reason it did not succeed for them – *Clinical psychologist Carol Rolston*

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operation. She said that bariatric surgery was not successful for 20 per cent of patients because they continued to eat the wrong foods. As Professor Hamdorf noted, there are any number of ways that bariatric surgery can be beaten. Eating for comfort during times of stress was one of them, so being able to control impulses was important. Ms Rolston teaches patients the importance of making time to eat, making good food choices, eating mindfully and not eating as a result of emotion.

Professor Hamdorf said there was 'a ring of truth' to the concern that surgeons wanted to operate on everyone. He saw the public system as being best placed to govern the amount of surgery being

performed. While the proportion of patients who are accessing bariatric surgery is less than one per cent in Australia (the figure is slightly higher in WA at 1.48),<sup>155</sup> it could be much higher if more surgery was performed in the public system. This would also ensure that patients who would benefit metabolically from the surgery were treated (rather than those undergoing surgery primarily for cosmetic reasons), and that they were given pre- and post-surgery support. Not all private surgeons offer this, but may still charge the same amount as those that do, according to Professor Hamdorf.

Obviously, with limited public health funds, there is a desire to maximise returns on surgical procedures. In Professor Hamdorf's view:

*... we should be looking at patients who have had type 2 diabetes for less than five years or in whom it is so poorly controlled, or controllable, that they will get complications next year if we do not do it now. You have got to look at it for the gains ... With a limited budget, there has to be rationing.*<sup>156</sup>

He said there was a national public taskforce looking at what sensible indications for surgery could be agreed upon.

Similar discussions are occurring in the UK, where only 6000 bariatric procedures are performed each year (although primarily in the public system). Two bariatric surgeons and a consultant endocrinologist who the Committee met with say that for the best outcomes, surgery should be performed within two years of a type 2 diabetes diagnosis. While intuitively it seemed that people on insulin were the best candidates, the evidence was that

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154 Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2018, p. 12.

155 Professor Jeffrey Hamdorf, *Transcript of Evidence*, 31 October 2018, p. 16.

156 *ibid.*, p. 17.



those that benefit most and thus help the public health system the most are those in which the disease has not progressed too far. There was no prospect of regressing diabetes in a patient who had had diabetes for 20 years and for these cases, taxpayer-funded surgery may not be best value for money.<sup>157</sup>

They were frustrated by what they saw as delays to surgery when patients were directed to follow a very low calorie diet (VLCD) for up to a year before surgery. They see lifestyle interventions such as a VLCD as appropriate for prevention but not for patients who are at the stage where they need treatment. They said that while patients lost weight on the VLCD they did not sustain the weight loss and would end up needing an alternative treatment, such as surgery. Patients needed to be given options but they also needed to be aware that the best chance for surgery being successful was within the first two years.<sup>158</sup>

### **Finding 6**

Bariatric surgery is an effective method of treating type 2 diabetes, often to remission, but limited access in the public health system means people who might benefit the most miss out, or are forced to draw on their savings to fund it privately.

### **Patients can be guided to make an informed choice**

Rather than recommend surgery or a particular diet, another approach is to educate the type 2 population so that they can identify health risks and tackle them using strategies of their choosing. This is the approach taken by Diabetes WA and by the Leicester Diabetes Centre in the UK.

Diabetes WA says that while it is tempting to try to find the ‘best’ diet to prevent or manage type 2 diabetes, nutrition interventions should be individualised and consumers should be able to make an informed choice from a wide range of evidence-based options.<sup>159</sup>

The organisation says that weight and food intake are sensitive issues for many people. Underlying genetic and metabolic conditions as well as psychological problems and a person’s social situation contributed to whether someone would be able to make changes that resulted in weight loss. Many were destined to fail if they attempted to follow a diet plan without psychological support, education and a ‘whole person approach’. However, these aspects were lacking in treatment approaches.<sup>160</sup>

Jane Speight, the director of the Melbourne-based Australian Centre for Behavioural Research in Diabetes, writes that although the Australian National Diabetes Strategy recommends enhancing access to structured self-management education programs and ensuring that peer support programs are accessible, ‘serious investment’ was needed to achieve both of these. She said it was illogical that there was no national program to support people with diagnosed type 2 diabetes to make lifestyle changes to avoid costly medications.

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157 Mr Ahmed, Mr Marco Adamo, Dr Alex Miras, *Briefing*, 29 January 2019.

158 *ibid.*

159 Submission 9, Diabetes WA, p. 9.

160 *ibid.*

*Beyond the laudable search for a cure, most diabetes research continues to focus on developing and trialling new medicines and technologies, while clinical practice focuses on screening for complications and prescribing. Now is the time for a paradigm shift to focus on how human behaviour and psychology can inform policy and practice to improve the health and lives of one million Australians.*<sup>161</sup>

Diabetes WA says that the most effective structured diabetes self-management education (SDSME) are evidence-based, person-centred, based on behavioural change theories and delivered as soon as possible after diagnosis. It sees its DESMOND program as meeting these criteria. DESMOND, which stands for Diabetes Education and Self-Management for the Ongoing and Newly Diagnosed, has been an integral part of the type 2 diabetes standardised care pathway in the UK since 2003 and was introduced to Australia by Diabetes WA in 2011. It is a group education program that helps people to identify their own health risks associated with their condition and then set personalised goals. The six-hour workshop, held over one or two days, encompasses strategies on healthy food choices, physical activity and medication management. There were over one thousand participants in WA in 2017-18.<sup>162</sup>

Diabetes WA discovered DESMOND when looking for a program to replace *Living with Diabetes*, a six-week program with a high attrition rate and no evidence of effectiveness. The UK's DESMOND program was the only one that had been the subject of a randomised control trial to determine its effectiveness and that could ensure delivery was consistent. Facilitators undergo a series of training and assessment sessions before they are accredited.

DESMOND was developed by the Leicester Diabetes Centre, one of the largest facilities in Europe for conducting clinical research in diabetes. Professor Melanie Davies, the centre's co-lead, said that there was much greater recognition now that drugs such as Metformin should not be the immediate option for reducing a diabetic's blood glucose level. While not particularly well-known, there was now good recent evidence that structured self-management intervention programs improved not only a patient's knowledge and self-efficacy, but also biomedical outcomes such as cardiovascular complications. She said that the UK's NICE guidelines were about five years behind in terms of recommending lifestyle interventions. It was not yet part of the mindset that this was a critical aspect of management, with GPs still focussing largely on pharmacological treatment.<sup>163</sup>

Mrs McGough says that DESMOND helps people to discover their triggers and what works for them, and this would be very different for every person.

*Knowledge is very rarely the reason why people do not change their behaviours. It is more about: okay, you have the knowledge, so what is it about your world right now that makes it difficult for you to do it? They need to then acknowledge that and start action planning around how to change*

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161 Jane Speight, 'Behavioural innovation is key to improving the health of one million Australians living with type 2 diabetes', *MJA*, Vol. 205, No. 4, 15 August 2016.

162 Submission 9, Diabetes WA.

163 Professor Melanie Davies, Leicester Diabetes Centre, *Briefing*, 1 February 2019.

*that bit rather than just pretend that if you have all the knowledge that it will change by itself. We spend a long time doing that.*<sup>164</sup>

Another diabetes education program which has been evaluated is the MOOC (Massive Open Online Courses) Life with Diabetes course, developed by Curtin University and offered via edX.<sup>165</sup> The course consisted of five modules containing a wide range of learning resources, including videos. Quizzes assessed how effectively the learners achieved the objectives for each module. In the three-month period that the course was open in 2017, it had 4338 learners from 149 countries, but only 10 per cent were from Australia. The majority also had university degrees and many were in fact health professionals. The evaluation report suggested that additional promotion through diabetes organisations could extend the reach to a wider audience to provide an effective resource at very little additional cost.<sup>166</sup>

The WA Country Health Service also has evidence-based chronic disease self-management models which address behavioural aspects of healthy eating and effective diabetes self-management. WACHS says that its Chronic Condition Self-Management (CCSM) upskilling program sponsors and supports 25 clinicians from across country WA to apply two consumer-centred coaching models<sup>167</sup> to patients, including those with type 2 diabetes. WACHS clinicians and other health service providers across country WA also provided individual and group-based support and advice on healthy eating for type 2 diabetes and on weight-related issues, although priority is given to patients with complex needs.<sup>168</sup>

Diabetes WA also runs the 'Smarts' suite of self-management programs which focus on self-care topics specific to diabetes management, including one for understanding carbohydrates and one on food shopping. As with DESMOND these workshops are free for National Diabetes Services Scheme registrants and Diabetes WA members.<sup>169</sup> In 2017-18, Smarts programs were delivered to 851 participants.<sup>170</sup>

While there are various self-management programs available to patients, Diabetes WA is concerned that, while marketed well, they do not have the evidence base, quality assurance or financial modelling to indicate any impact on diabetes outcomes.<sup>171</sup> While Diabetes WA obviously sees DESMOND as fulfilling these requirements, the organisation says that the DESMOND programs are under-used 'due to poor linkage and pathways between the secondary and tertiary systems, where people with type 2 diabetes are on lengthy waitlists

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164 Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2018, p. 14.

165 edX is an online learning destination and MOOC provider, offering courses from universities and institutions to learners around the world.

166 Patricia Marshall and Jacqui Kelly, *Report on 'Life with Diabetes' Online Course*, Curtin University, March 2018.

167 These are: the Flinders Chronic Condition Management Program (developed by Flinders University), which provides tools for health practitioners to help clients assess self-management behaviours, barriers, psychosocial issues and preferences to produce an individualised care plan; the Chronic Disease Support Program by the Benchmark Group, a nationally accredited program designed to improve patient health, reduce hospital admissions and improve patient compliance.

168 Submission 31, WA Country Health Service, p. 6.

169 Diabetes WA, *Smarts Program*, accessed 26 February 2019, < <https://diabeteswa.com.au> >

170 Diabetes WA, *Annual Review 2017-18*, p. 22.

171 Submission 9, Diabetes WA, p. 5.

and not referred to the DESMOND program'.<sup>172</sup> It suggests that it be a requirement for people with type 2 diabetes to attend a DESMOND program prior to referral to tertiary care. This would be similar to the process in the UK's tiered public health system, in which patients must spend time in tier three lifestyle intervention programs before being considered for surgery (tier four).

Diabetes WA says that the National Diabetes Services Scheme (NDSS) Standards for Structured Diabetes Education could be applied at a state level to drive quality and outcomes similar to the UK. WA already has standards related to education, as set out in the Framework for Action on Diabetes and Diabetes Service Standards 2014, but as yet there are no key performance indicators attached to these which would enable evaluation.<sup>173</sup> Standard 2.3 indicates that:

*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 DAA and ADEA view group education as an important management strategy, citing research<sup>174</sup> suggesting that group classes tend to be longer than individual visits and that the information received is rated as more useful than that received by participants in individual counselling programs. Patients also valued being able to share problems with similarly affected individuals. However, there were also studies that showed poor attendance and completion of group programs. DAA and ADEA believe consideration needs to be given to improving access to group programs and making them more appealing.<sup>175</sup>

Diabetes WA believes this could be achieved if it was resourced to coordinate and manage self-management education across the primary, secondary and tertiary sectors. This will be discussed in more detail in chapter four.

While there is emerging evidence that self-management education is a valuable approach to diabetes management, there remains the question of what type of nutritional advice is offered as part of that. For example, Leicester Diabetes Centre programs related to healthy eating are based on Diabetes UK guidelines. One of the centre's dietitians, Emma Baldry, confirmed that their messages were based on reducing fat and increasing fibre in the diet. She said there were mixed messages in regard to low carb, but the centre's advice was in line with the Eatwell Guide, which was to replace processed, refined carbohydrates with more complex carbohydrates, but not necessarily to reduce carbohydrates.<sup>176</sup>

Hence, even though people are encouraged to make their own informed decisions, the basis for healthy eating decisions will be influenced by the nutritional philosophy of the program.

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172 Submission 9, Diabetes WA.

173 *ibid.*

174 Submission 35, Dietitians Association of Australia/ Australian Diabetes Educators Association, p. 6.  
Research cited: M Trento et al., 'A 3 year prospective randomized controlled clinical trial of group care in type 1 diabetes', *Nutrition, Metabolism & Cardiovascular Disease*, vol. 15, no. 4, 2005, pp. 293-301.

175 Submission 35, Dietitians Association of Australia/ Australian Diabetes Educators Association, p. 8.

176 Emma Baldry, Leicester Diabetes Centre, *Briefing*, 1 February 2019.

In the case of DESMOND, as a Diabetes WA administered program, we assume this is in line with the Australian Dietary Guidelines, which many regard as unsuitable for diabetics.

There is also the question of whether people respond better to being given a diet to follow or to being guided, in a group setting, to work out what will work best for them and why. While the evidence for self-management education is fairly new and limited, it makes sense that patients be provided with support to work out the psychological and social factors that affect the management of their condition. It makes most economic sense for the sessions to be conducted in a group, irrespective of whether this is of most benefit to the individual; but to realise a benefit in terms of a reduction in HbA1c and the need for drug therapy in the population, we assume it would need to be rolled out on a large scale.

The issue of who should provide such programs will be considered in more detail in chapter four and the cost will be considered in chapter five.

### **Finding 7**

Self-management education programs for people with type 2 diabetes (such as DESMOND) appear to be a useful method of improving management and potentially reducing dependence on pharmacotherapy.

### **Recommendation 5**

Self-management education programs be offered to everyone with type 2 diabetes, in line with the Framework for Action on Diabetes and Diabetes Service Standards 2014. Programs should be evaluated at least every two years to ensure that they meet quality assurance criteria and are sustainable.



## Chapter 3

# Preventing diabetes by encouraging healthy eating habits

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*People's willpower and ability to resist temptation is inherently linked to how tempting their environment is. – Hugo Harper, Behavioural Insights Team*

While not all people who are overweight or obese have (or will develop) type 2 diabetes, 85 to 90 per cent of people who have it are overweight or obese.<sup>177</sup> Being overweight is the biggest risk factor for developing type 2 diabetes. Therefore, it makes sense to target type 2 diabetes prevention strategies at weight loss and healthy eating. Weight loss will of course help to prevent a range of other chronic diseases, including cardiovascular disease, chronic kidney disease and various cancers. It will also ease the demand for joint replacement operations.

This chapter will look at measures to prevent type 2 diabetes specifically by targeting people with pre-diabetes, metabolic syndrome and insulin resistance, as well as women who have had gestational diabetes. Beyond that, it will consider weight loss and healthy eating strategies aimed at the general population. This encompasses education and awareness programs (including for children and for pregnant women), regulatory measures, behavioural change strategies (i.e. nudges), the role of the GP, and the role that social and cultural factors play.

In order to tackle obesity and type 2 diabetes, though, we need an appreciation of how we got to this point.

### There are multiple causes of our obesity

There is an ongoing debate about who is to blame for the fact that around two-thirds of Western Australians are overweight or obese. While some will proclaim that the individual is to blame and is therefore responsible for addressing it, it is more accurately characterised as a problem created by society. As long as they live in an obesogenic environment – bombarded by invitations to consume appealing but unhealthy food, or perhaps without the means to eat more healthily – many individuals will struggle to control their weight. Given the environment and the cost, governments cannot afford to make weight loss entirely the responsibility of the individual.

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<sup>177</sup> World Health Organisation, *Obesity and Overweight Fact Sheet*, WHO 2003; Mary Gatineau et al., *Adult obesity and type 2 diabetes*, Public Health England, July 2014, p. 5; National Center for Chronic Disease Prevention and Health Promotion, *National Diabetes Statistics Report 2017*, Centers for Disease Control and Prevention, 2017; Y Oguma, Y, HD Sesso, RS Paffenbarger Jr, and IM Lee, 'Weight change and risk of developing type 2 diabetes', *Obesity Research*, vol. 13, no. 5, 2005, pp. 945-95.

### Genetics and epigenetics play a role

There is of course a genetic component to a person's weight, but this does not mean there is nothing they can do about it. The more we discover about epigenetics – the study of the way in which instructions are issued to the DNA to determine which genes are switched on or off – the greater our understanding of how what we eat can affect the next generation.

According to reproductive biologist Professor Rebecca Robker,<sup>178</sup> our susceptibility to obesity and diabetes is set long before we become adults. Professor Robker explained how the number and size of fat cells is determined during the development of the foetus. The number of fat cells will never change; although they may shrink, they will always be there ready to soak up excess nutrition.<sup>179</sup>

The brain is also developed in utero, and hence is subject to influences from the mother. Studies in animals had shown that the types of food the pregnant mother was given determined food preferences in the offspring; they were starting life, potentially, with preferences for sweet foods or fatty foods.

Even before the foetus stage, studies in sheep and other species had shown that early stage embryos from a mother with a fatty diet that were implanted into the uterus of a lean mother without a fatty diet still developed insulin resistance. By the time an embryo with only a couple of cells has developed, the signals have been set. The information in that cell goes on to make the other cells.

Professor Robker said there were three things that come from the egg that persist in the next individual: the DNA, which is regulated by nutrition as it reacts to changes in the environment across generations; the lipid (fatty acid) droplets, which will change with diet; and the mitochondria (which produce the energy from the lipids) that people have in different amounts. The quality of the mitochondria in the egg determine how effective they are in the body. A mouse with insulin resistance from over-nutrition will have high lipids and sugars which make the egg mitochondria defective and hence less effective at generating more mitochondria in rapidly dividing cells. This results in an offspring with less mitochondria, and this may be the basis for a reduced metabolism.

Thus, the imprints on DNA and the amount of mitochondria a person inherits, while no guarantee of developing diabetes, are certainly a risk factor. As Professor Robker points out, people are not destined to develop it and they have individual control over their lives. But knowing that these things are inherited made it important to have good nutrition before becoming pregnant and in the teenage years.

Another aspect to be aware of was that a pregnant woman's nutrition influences not only the foetus, but, if the foetus is female, the cells in the eggs that are already in place in the foetus (i.e. the grandchildren of the pregnant woman).

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178 NHMRC senior research fellow at the Robinson Research Institute within the University of Adelaide's School of Medicine.

179 Prof Rebecca Robker, University of Adelaide, *Briefing*, 28 September 2018.



While some of us may be predisposed to developing type 2 diabetes due to these epigenetic factors, some may also be genetically predisposed. However, as endocrinologist Professor Tim Davis points out, there are 60 to 100 genes that have been associated with type 2 diabetes. As a polygenic disease presenting relatively late in life, there had not been much success in using genetic profiling as a prediction tool.<sup>180</sup>

Professor Roy Taylor and Professor Rury Holman also hypothesise that people have a personal fat threshold, which, if exceeded, makes them more likely to develop type 2 diabetes. The threshold is thought to be independent of body mass index (BMI), which is why some people can be very heavy and metabolically healthy. Professor Taylor said there was no arbitrary cut-off for crossing the threshold, but when it was crossed the beta cells failed to respond adequately to food and plasma glucose levels became abnormal. The theory helps to explain why some people can put diabetes into remission after losing weight, even if they still remain obese by definition.<sup>181</sup>

### **Temptation at every turn**

The environment in which we live, work, study, shop and play influences our ability to maintain a healthy weight. An obesogenic environment is one that tips its inhabitants towards obesity simply by way of encouraging unhealthy eating and discouraging exercise. Factors such as proximity to fast food outlets, exposure to unhealthy food and drink advertising, the trend towards convenient packaged foods as people lead busier lives, the reliance on cars for transport and perceptions of safety in public areas are all part of the everyday environment that can lead to weight gain.

As the AMA (WA) submission notes, 'food selection is rarely the result of considered thinking. More often it is a quick, automatic decision which is highly influenced by various cues.'

Supermarket design and product design and placement influenced purchasing and consumption behaviours, and large portion sizes, often available in quick-serve restaurants, resulted in increased consumption.<sup>182</sup> Portion sizes in Australia have increased by 66 per

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Currently we 'tell' people that they are fat because (a) they eat too much, (b) they eat too much fat, (c) they don't do enough exercise, and (d) they don't exercise their will power enough. All they have to do is resist the urges to eat so much and do regular exercise. We are telling fat people that they are failures and that it is all their fault. Many people have tried to lose weight using the exercise, will-power and diet approach and most people fail after repeated attempts. They give up and accept that they have failed and are destined to be fat or obese and chronically ill. — Submission 2, Ronald Bareis

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180 Professor Timothy Davis, *Transcript of Evidence*, 12 September 2018, p. 9.

181 Roy Taylor and Rury Holman, 'Normal weight individuals who develop type 2 diabetes: the personal fat threshold', *Clinical Science (London)*, vol. 128, no. 7, April 2015; Professor Roy Taylor, *Briefing*, 4 February 2019.

182 Submission 25, Australian Medical Association (WA), p. 6.

cent since 1995, according to a study by the George Institute for Global Health and the Heart Foundation.<sup>183</sup>

Our habits are formed partly as a result of what we are exposed to. Various contributors have mentioned an increase in snacking between meals, but with a startling array of conveniently packaged sugary snacks available at every turn it is not surprising that the snacks are unhealthy. Sugary drinks also dominate vending machines and beverage refrigerators. In an obesogenic environment, the easy choice is not the healthy choice.

In the case of Indigenous people, environmental factors have combined with genetic factors to create a propensity for being overweight. As Professor Davis explained, when people were hunting and gathering and it was a feast or famine existence, it was a genetic advantage to have genes that stored fat which you could live off when food was in short supply.

*Traditionally, Indigenous people have been lean, but have the capacity to store fat when food is around. When you put those populations in a sedentary Western lifestyle where food is available all the time and they are not exercising as much, then they store fat and it has adverse metabolic consequences.... It is a complex genetic and environmental interaction.<sup>184</sup>*

### **Food companies research ways to keep us hooked**

It is not by chance that we are surrounded by unhealthy food that is difficult to resist. The food industry has engineered it thus because it is an easy and profitable sell. It has invested millions to determine the ultimate combination of sugar, salt and fat, known as the 'bliss point', according to former US Food and Drug Administration commissioner David Kessler. In his 2009 book *The End of Overeating: Taking Control of the Insatiable American Appetite*, he describes these foods as 'hyperpalatable'.

New York Times reporter Michael Moss spent years investigating the tactics used by major food companies. He talked to more than 300 people in (or formerly employed by) the processed-food industry, from scientists to marketers to CEOs.

*What I found, over four years of research and reporting, was a conscious effort — taking place in labs and marketing meetings and grocery-store aisles — to get people hooked on foods that are convenient and inexpensive.<sup>185</sup>*

He said the foods were marketed to people who, while not powerless, were 'extremely vulnerable' to these companies' industrial formulations and selling campaigns.<sup>186</sup>

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183 Miaobing Zheng, Anna Rangan, Beth Meertens and Jason HY Wu, 'Changes in Typical Portion Sizes of Commonly Consumed Discretionary Foods among Australian Adults from 1995 to 2011–2012', *Nutrients*, vol. 9, no. 6, 2017.

184 Professor Timothy Davis, *Transcript of Evidence*, 12 September 2018, p. 8.

185 Michael Moss, 'The Extraordinary Science of Addictive Junk Food', *The New York Times Magazine*, 20 February 2013, accessed 30 September 2018, <www.nytimes.com>

186 *ibid.*

Internal sugar industry documents discovered in 2016 show how the sugar industry paid Harvard scientists in the 1960s to play down the link between sugar and heart disease and focus the blame on saturated fat. This shaped future research into the role of nutrition and heart disease, including dietary recommendations. One of the authors of the paper detailing the ruse, University of California (San Francisco) professor of medicine Stanton Glantz, said that for years Americans who had been encouraged to reduce their fat intake consumed low-fat, high-sugar foods that some say have led to the obesity crisis. The saturated fat warnings remain a cornerstone of dietary guidelines around the world.<sup>187</sup>

Producers of fattening products have also sought to shift the blame to a lack of physical activity. Australian Council on Smoking and Health executive director Maurice Swanson recalls a 2014 event called the Happiness Cycle, in which Coca-Cola teamed up with Melbourne-based company Bicycle Network to offer 300 free bikes (red and white, but without a logo) to teenagers in three councils.

*Why would they want red and white bikes all over the northern suburbs of Perth? Because it is branding. But it also complements their political strategy of convincing politicians and decision-makers that the challenge for obesity is slothfulness. That is a load of rubbish. It is what you have put in your mouth primarily that drives obesity, not how much physical activity you are doing. All you need to do is look up how many hours on the treadmill you need to spend to burn off a Mars bar, for example. It is just a really good distraction strategy by them.*<sup>188</sup>

They will also seek to align themselves with healthy messages, as Mr Swanson noted, to benefit from a halo effect – as in the case of McDonalds offering healthier options and winning endorsement from the national Heart Foundation.

*So what they were aiming to do there—this is where they are so smart and they have the best brains working for them—was to go into partnership with a health charity that has a respected brand, you get the halo effect, and then you spend three penneths of nothing promoting the healthier alternative and you focus all your promotion on the burger, fries, chips and Coke, because that is what you want to flog because it has the highest margin.*<sup>189</sup>

### **Social and cultural factors are beyond the control of the individual**

Key social determinants of health such as employment, economic stress, education, transportation and cultural norms all affect an individual's ability to access a healthy diet and engage in healthy behaviours.

The Public Health Association of Australia (PHAA) notes that diet follows a social gradient in Australia, with those in the highest income group, non-Indigenous Australians and people

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187 Anahad O'Connor, 'How the sugar industry shifted blame to fat', *The New York Times*, 12 September 2016.

188 Mr Maurice Swanson, Australian Council on Smoking and Health, *Transcript of Evidence*, 7 November 2018, p. 11.

189 *ibid.*, p. 8.

living in more advantaged neighbourhoods more likely to have a healthy diet.<sup>190</sup> Some argue that the cost of fruit and vegetables is a disincentive for people to follow a healthy diet,<sup>191</sup> but the time and skills required to prepare a healthy meal can also influence whether a family sits down to a nutritious meal.<sup>192</sup> A healthy diet was estimated to consume 20 to 31 per cent of the disposable income of a family on a low income, compared with 18 per cent for those on a median disposable income. Research had also consistently found that healthy food baskets cost 20 to 43 per cent more in remote areas than in major cities.<sup>193</sup> This is supported by the 2013 Food Access and Cost Survey conducted in WA which found that access to fresh, good quality, nutritious and affordable food in WA is limited by where people live and their income.<sup>194</sup>

Given the link between socioeconomic status and diet, it is not surprising to find that the prevalence of diabetes among adults from low socioeconomic backgrounds was 2.6 times higher than for those from higher socioeconomic backgrounds in 2014-15.<sup>195</sup>

The Australian Health Promotion Association (WA branch) notes that culture and traditions can play a role in both encouraging eating and not eating. While some cultures practiced fasting as a part of their religion, other traditions involved feasting, which often consisted of energy dense food such as sugary cakes and foods high in saturated fat.<sup>196</sup> Ishar Multicultural Women's Health Centre said that people from other cultures had a strong need to keep the traditions of their country of birth alive, which included eating traditional foods and observing religious feasts and festivals.<sup>197</sup>

Aboriginal people similarly are healthier when observing a traditional diet. It has been found that traditional foods contribute to physical health and play a significant role in the cultural, spiritual and emotional health of Aboriginal people. European arrival severely affected the retention of knowledge of, and access to, traditional foods.<sup>198</sup>

Professor Alex Brown, Aboriginal Health Theme Leader at the South Australian Health and Medical Research Institute, explained that the relatively rapid transition from the diet that Aboriginal people used to follow to the diet that they have now is of major concern and played 'probably a critical role in driving the epidemic in diabetes that we see'.<sup>199</sup>

The National Aboriginal Community Controlled Health Organisation (NACCHO) also expressed this in a submission to the Senate Select Committee into the Obesity Epidemic in Australia where they said the transition from a hunter-gatherer lifestyle to a Westernised

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190 Submission 17, Public Health Association of Australia, p. 7.

191 *ibid.*, p. 9; Submission 29, closed submission; Submission 35, Dietitians Association of Australia/Australian Diabetes Educators Association, p. 13.

192 Submission 2, Mr Ronald Bareis, p. 6; Submission 12, Dr Philip O'Brien, p. 36; Submission 25, Australian Medical Association (WA), p. 7.

193 Submission 17, Public Health Association of Australia, p. 9.

194 Submission 20, Department of Health, p. 4.

195 *ibid.*

196 Submission 24, Australian Health Promotion Association (WA branch), p. 4.

197 Submission 7, Ishar Multicultural Women's Health Centre, p. 2.

198 Submission 17, Public Health Association of Australia, p. 8.

199 Professor Alex Brown, South Australian Health and Medical Research Institute, *Briefing*, 28 September 2018.

lifestyle was a major contributing factor to Aboriginal people developing nutrition related diseases.<sup>200</sup>

Evidence of this can be found in research by Professor Kerin O’Dea, an expert in nutrition and population health, especially in relationship to chronic disease among Aboriginal people. Professor O’Dea’s research in the Kimberley community of Mowanjum in the 1980s found a marked beneficial impact on diabetes from temporarily reverting to a traditional hunter-gatherer lifestyle. The research study involved taking a group of Aboriginal men away from a Western diet (refined and processed foods) to one that consisted of about 1200 calories a day, with 50 per cent from protein.<sup>201</sup> The 13 men spent three months following as closely as practicable a traditional, nomadic, hunter-gatherer lifestyle. At the end of this period, oral starch tolerance tests were performed at the final bush camp. There was a marked reduction in plasma insulin concentration associated with a small improvement in glucose tolerance.<sup>202</sup> Professor O’Dea said the health of the participants deteriorated once they resumed a Western diet.<sup>203</sup>

Professor O’Dea believes those living in a remote area should be encouraged to hunt and gather on a regular basis – or otherwise eat a healthy Western diet.<sup>204</sup> Professor O’Dea acknowledges this is problematic for those living in the more remote areas as access to healthy fresh foods is generally more expensive due to their perishable nature.<sup>205</sup>

Professor Brown’s experience is that people in remote communities will happily eat fruit and vegetables if they are available:

*we take boxes of fruit and vegetables when we do our research work, and it goes within the first day. It is not that people will not have it; they cannot get it, or they cannot afford it.*<sup>206</sup>

Professor Brown said the capacity to store and prepare foods compounds the problem:

*They have ... no storage space and no preparation space. The infrastructure in the housing they have got for cooking and preparing stuff is poor at best.*<sup>207</sup>

Outback Stores<sup>208</sup> are attempting to address supply and food security in some communities. Outback Stores ‘aims to improve the health of Indigenous people living in remote

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200 NACCHO, Submission to the Federal Government Senate Inquiry into the Obesity Epidemic in Australia, p. 5.

201 Professor Kerin O’Dea, *Briefing*, 21 November 2018.

202 K O’Dea, RM Spargo, K Akerman, ‘The effect of transition from traditional to urban life-style on the insulin secretory response in Australian Aborigines’, *Diabetes Care*, vol. 3, no. 1, 1980, pp. 31-7.

203 Professor Kerin O’Dea, *Briefing*, 21 November 2018.

204 *ibid.*

205 *ibid.*

206 Professor Alex Brown, South Australian Health and Medical Research Institute, *Briefing*, 28 September 2018.

207 *ibid.*

208 Outback Stores is a wholly Commonwealth owned company that is currently administered under the Prime Minister and Cabinet Portfolio.

communities by improving access to a nutritious and affordable food supply.<sup>209</sup> They are being implemented in 11 remote communities in WA.<sup>210</sup>

They appear to be successful to an extent. Comments from a closed submission to the Committee noted that the Outback Store in the area had ‘significantly more range and much cheaper fruit, veg and legumes’. It said the chain had increased buying power which reduced the cost. The store had employed a nutritionist and had policies around soft drink sales and placement of water in the store.<sup>211</sup>

However, a comment from another contributor said that Outback Stores had an agreement with Coca-Cola Amatil to stock a range of its beverages in return for a free refrigerator and refrigeration maintenance. The quality of takeaway meals also varied between stores:

*Outback stores should be mandated to provide healthy takeaways. Some stores do a good job but as long as junk is available this will always be the default choice. This appears (in the East Kimberley) to be determined by the managers, whether they cook good foods or rely on easy to prepare frozen fast foods.*<sup>212</sup>

Community gardens that grow fruit and vegetables, even if small scale, could be a means of supply for community members or the local store but were often dependent upon the motivation of one or two community members.<sup>213</sup> The viability of establishing these would have to be measured against existing supply options.

Professor Brown believes there are opportunities for native food sources, which were always a part of Aboriginal diets, to be much more mainstream:

*There are potentially significant economic benefits for those communities to develop agribusiness in that space, but starting from usually a very, very low base, and often these community organisations do not have all the muscle they need to turn a potential native food product into a sustainable business front and then market more broadly. That being said, Australia has got a pretty good agricultural science background, so surely there are some things we can do.*<sup>214</sup>

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209 Submission 31, WA Country Health Service, p. 7.

210 These are: Beagle Bay Community Store, Illawarra Store, Kundat Djaru Community Store, Mulan Community Store, Tjuntjuntjara Community Store, Uraro Store, Warman Roadhouse, Wirramanu Community Supermarket, Wungkul Store, Yilili, and Yungngora Community Store. (Submission 31, WA Country Health Service, p. 7.)

211 Submission 29, closed submission.

212 *ibid.*

213 *ibid.*

214 Professor Alex Brown, South Australian Health and Medical Research Institute, *Briefing*, 28 September 2018.

Professor Brown considers Western Australia ‘exceptionally strong’ in this area.<sup>215</sup> WA’s Department of Primary Industries and Regional Development advised the Committee that it is establishing a new project, the West Australian Tropical Agriculture Research Initiative, that will include a research theme on Aboriginal agriculture and Indigenous plants. This is designed to create a better understanding of the harvesting and use of bush foods and medicines.<sup>216</sup>

In terms of methods of sustainable production of fresh fruit and vegetables for remote communities, the Department of Primary Industries and Regional Development identified multiple obstacles and no solutions.<sup>217</sup>

#### **Recommendation 6**

The State Government task the Department of Primary Industry and Regional Development to work with other government agencies, such as the Department of Planning, Lands and Heritage, to identify and overcome obstacles to remote communities developing fresh food sources for personal and commercial purposes.

#### **Recommendation 7**

The Department of Housing consult with Aboriginal people in remote communities to ensure that the housing provided is appropriate for their lifestyle.

In 2014 an international program to establish a knowledge base of the sociocultural factors that make some people vulnerable to the development of type 2 diabetes was set up. The Cities Changing Diabetes program recognises that the continuing rise in the prevalence of both obesity and diabetes indicates a need to look at the drivers that underlie these conditions. An extensive social research project involving five cities across three continents identified four social factors (financial constraints, time constraints, resource constraints and geographical constraints) and four cultural factors (traditions and conventions, perceptions of health and fitness, understanding of self and others, changes and transition) that influence an individual’s vulnerability to diabetes in an urban setting.

There will be a more detailed examination of social and cultural factors and the work of the Cities Changing Diabetes program at end of this chapter. Social and cultural factors will also be discussed in the next chapter in the section which looks at what is being provided for groups that are more vulnerable to diabetes.

### **Programs targeting those with pre-diabetes have been effective**

The dietary interventions outlined in chapter two for treating type 2 diabetes are also applicable to people with pre-diabetes. As numerous studies conducted over the past two

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215 Professor Alex Brown, South Australian Health and Medical Research Institute, *Briefing*, 28 September 2018.

216 Mr Ralph Addis, Department of Primary Industries and Regional Development, Letter, 13 February 2019, p. 2.

217 *ibid.*

decades have shown,<sup>218</sup> losing around 10 per cent of body weight will be enough to prevent or delay type 2 diabetes in at least 50 per cent of people with pre-diabetes. The US Diabetes Prevention Program trial, which has been running since the early 2000s, has found that participants in the lifestyle change group have continued to stave off diabetes progression 15 years after the initial intervention. Diabetes WA goes as far as to say that weight loss in those overweight or obese 'is critical' to prevent a progression of pre-diabetes to diabetes. The questions is, again, what is the best way to do this?

Studies are continuing to try to determine this. The debates are similar to those discussed in relation to management of type 2; again, it seems to be a question of when to intervene and to what degree: should people at risk be given the means to follow a rapid weight loss liquid replacement diet, for example, or is it better to arm them with the knowledge and skills to manage their diet in their own way?

The same health practitioners who recommend the low carb diet for type 2 also recommend it for the conditions that appear prior to diabetes. As local GP Sanjeev Balakrishnan notes:

*The lead up to diabetes often includes obesity, insulin resistance and non-alcoholic fatty liver disease (NAFLD or fatty liver) years before a diagnosis of diabetes is made. In my clinical experience, these conditions are related and are also ameliorated by a low carbohydrate diet. It is reasonable that a diet that reverses type 2 diabetes, also reverses the conditions that lead up to it.*<sup>219</sup>

A low-carbohydrate diet has also been part of the six-year multinational PREVIEW study to test the efficacy of two different diets in preventing type 2 diabetes. The PREVIEW (Prevention of diabetes in Europe and Worldwide) study, which included Sydney University as one of the non-European participants, has recently concluded. Very early results show that only 4 per cent of the 2500 people with pre-diabetes who lost weight and maintained an intensive lifestyle intervention for three years went on to develop diabetes. Ordinarily, 21 per cent would have been expected to develop diabetes. This was a much lower rate than achieved in other diabetes prevention studies, such as the US and Finland studies, according to one of the study's leaders, Professor Jennie Brand-Miller.<sup>220</sup>

While one group followed a low-fat diet quite high in carbohydrate (55 per cent of energy intake), the other followed a diet with modestly more protein and modestly less carbohydrate, with an emphasis on low glycaemic index sources of carbohydrate. Professor Brand-Miller said that because so few cases of diabetes had resulted, it was not possible to say one diet was better than another. What she did find surprising, however, was the success of the meal replacement shakes which participants used in the first eight weeks of the study. Participants lost 10 per cent of their body weight – twice as much as expected.

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218 The Da Qing study in China (Pan et al. 1997), the Finnish diabetes prevention study (Lindström et al., 2006) and the US Diabetes Prevention Project (Knowler et al. 2002) are the most commonly cited large-scale prevention studies.

219 Submission 11, Sanjeev Balakrishnan, p. 2.

220 Professor Jennie Brand-Miller, University of Sydney, *Transcript of Evidence*, 17 October 2018, p. 4.



*We have always maintained that to lose weight it is best to use real food and to teach people to eat properly. I no longer say that, and I am not the only one. The best way to lose weight is with the meal replacement shakes. The reason why they are best, and why you lose weight so fast, is that the number of calories is well defined, and within a few days your body has become high in ketones, and your brain is satisfied ... You are so pleased because you have [not] been this weight for a long time ... so now is the time to start the lifestyle intervention, because you want to maintain that weight loss.<sup>221</sup>*

Professor Brand-Miller said participants entered the lifestyle phase with a completely different frame of mind. They still needed to maintain their weight loss with a good diet, but having a head start with perhaps 10 kilograms already lost was motivating. The PREVIEW researchers are in the process of analysing the trial data further to try to determine the characteristics of individuals most likely to make the effort to prevent diabetes by changing their lifestyle.

As mentioned in the previous chapter, NHS England has recently announced that it will provide meal replacements to 5000 people as part of its Diabetes Prevention Programme. This is a trial which Western Australia would be wise to monitor; will the investment in the meal replacements pay dividends down the track? The UK is already far more advanced than Australia in terms of diabetes prevention, in that it does at least have a national program. The Healthier You: NHS Diabetes Prevention Programme is offered to 200,000 people with pre-diabetes each year (which nevertheless is still less than one per cent of the five million people in England estimated to be at high risk of developing type 2 diabetes). It is a nine-month education and behaviour change program offering a minimum of 13 education and exercise sessions of one to two hours and at least 16 hours of or one-to-one assistance.<sup>222</sup>

Leicester Diabetes Centre has adapted it for its 10-month *Let's Prevent* program, which has been adopted by Diabetes WA. UK program lead Mark Gray said the program was about small steps to change, rather than rapid weight loss. The first month consisted of weekly 90-minute group sessions covering healthy eating and the effect of certain foods on diabetes. By using games and discussion, participants would learn to justify their food choices and consider the frequency, amount and type (FAT) of foods in their diet. There was no prescriptive plan for weight loss.<sup>223</sup> Participants who attended just two *Let's Prevent* sessions were apparently 62 per cent less likely to develop type 2 diabetes compared with a control group.<sup>224</sup>

Referral to the program is via the person's GP, which means GPs need to be aware of the program and need to have determined that the patient is at risk.

In Western Australia, Diabetes WA received a grant from the Department of Health to pilot *Let's Prevent* in the Greater Bunbury area from 2018 to 2020. The project is in collaboration with the WA Country Health Service South West. Diabetes WA says that *Let's Prevent* meets

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221 Professor Jennie Brand-Miller, University of Sydney, *Transcript of Evidence*, 17 October 2018, p. 8.

222 NHS England, *NHS Diabetes Prevention Programme*, accessed 7 March 2019, <[www.england.nhs.uk](http://www.england.nhs.uk)>

223 Mr Mark Grey, Leicester Diabetes Centre, *Briefing*, 1 February 2019.

224 Submission 9, Diabetes WA.

National Institute for Health and Clinical Excellence (NICE), National Diabetes Services Scheme (NDSS) and WA standards for structured education.

Standard 1.2 (b) of the Framework for Action on Diabetes and Diabetes Service Standards 2014 advises:

*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.*

While there is no national program, other states have prevention programs. Victoria's Life! Program, said to be the largest lifestyle intervention program in Australia for people at risk of type 2 diabetes or cardiovascular disease, has been delivered to more than 54,000 Victorians since 2007. Delivery is by a series of face-to-face consultations or telephone coaching. The Victorian government initially approved funding until 2011 but the program's success has seen funding continue. In 2017-18, 5547 Victorians participated in the program. Group course participants lost an average of 2.1 kg and reduced their risk of diabetes by 34 per cent, while participants of telephone health coaching lost an average of 2.7 kg (self-reported) and reduced their risk of diabetes by 43 per cent.<sup>225</sup>

Diabetes WA also has a *Walking Away from Diabetes* program, a free 3.5 hour interactive workshop which helps people at risk of type 2 identify simple changes and strategies to help them lower their risk. This includes healthy eating. The program has only been run in the Pilbara at this stage.

### Finding 8

There is convincing evidence that dietary interventions, including liquid meal replacements, can delay or prevent the development of type 2 diabetes in people who have pre-diabetes when they are adhered to.

### Finding 9

There is evidence from the United Kingdom that education and behaviour change programs, such as *Let's Prevent*, can delay or prevent the development of type 2 diabetes in people who have pre-diabetes.

Recommendations in regard to prevention programs will be made in chapter five where cost-benefit will be taken into account.

### **Gestational diabetes**

The Committee received very little evidence in relation to gestational diabetes. Those who did raise it were very concerned about the rate at which it is increasing.<sup>226</sup> The majority of cases are managed by diet and exercise, with only a few requiring insulin.

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225 Department of Health and Human Services, *Annual Report*, Government of Victoria, 2018, p. 30.

226 Dr Andrew Kirke, Rural Doctors' Association of WA, *Transcript of Evidence*, 28 November 2018, p. 9; Mr Mark Shah, Diabetes and Endocrine Health Network, *Transcript of Evidence*, 12 September 2018, p. 13.

As noted in chapter two, the Czech Republic has amended its guidelines to recognise the benefit of low carbohydrate intake for women with gestational diabetes. While previously the recommendation was for 250 grams of carbohydrates split into six portions, they now recommend less than 200 grams per day. Carbohydrate intake at this level was previously not recommended because of concerns about gestational ketosis, which was believed to pose risks to the offspring. However, the higher level of carbohydrate intake required insulin treatment in up to one-third to one-half of patients. The guidelines were amended in 2016 on the basis of accumulating evidence that diets with low glycaemic load delivered better results. Now, fewer than 10 per cent of women require medication.

Gestational diabetes specialist Dr Hana Krejčí notes that carbohydrate intake is individual, and many women can achieve good glycaemic control after eliminating free sugars and foods with a high glycaemic index. These women could enjoy a normal portion of carbohydrate side dishes, but others needed to reduce side dish portions.<sup>227</sup>

The advice offered on the DoH website, Healthy WA, is to follow ‘a healthy eating pattern that is low in fat (especially saturated fat), high in fibre and incorporating some low GI foods with each meal and being physically active’.<sup>228</sup>

Diabetes Australia advises women to choose foods that are low in fat (particularly saturated fat) and high in fibre, and are a good source of carbohydrate (grains, cereals, fruit, pasta, rice). The Diabetes Australia/NDSS booklet, *Managing gestational diabetes – caring for yourself and your baby*, states that a quarter of the plate should be carbohydrates. It says that carbohydrate foods should be spread over three small meals and two to three snacks each day – similar to the abandoned Czech guidelines.<sup>229</sup>

Given that half of women who have gestational diabetes go on to develop type 2 diabetes, efforts to induce remission should be seen as part of type 2 prevention – not just part of gestational diabetes management.

Being overweight is a risk factor for developing gestational diabetes, so healthy eating and weight loss programs aimed at women prior to pregnancy would be beneficial.

#### Recommendation 8

The Department of Health should review the evidence from abroad that a lower carbohydrate diet is beneficial to women with gestational diabetes, and consider revising its healthy eating advice for gestational diabetes.

### Programs targeting obesity are part of the solution

There are, of course, a myriad of programs for overweight people who want to lose weight. Dieting is a major industry. This inquiry did not seek to determine whether particular commercial dieting products or programs are superior to others; rather, we are interested in

227 Submission 34, Dr Hana Krejčí, General University Hospital (Prague), p. 1.

228 Department of Health, *Healthy WA – Gestational diabetes*, accessed 8 March 2019, <[https://healthywa.wa.gov.au/Articles/F\\_I/Gestational-diabetes](https://healthywa.wa.gov.au/Articles/F_I/Gestational-diabetes)>

229 NDSS and Diabetes Australia, *Managing gestational diabetes – caring for yourself and your baby*, Diabetes Australia, Canberra, pp. 8, 10.

what the State Government is doing, and should be doing, to encourage healthier eating habits and provide environments that assist in this.

The Department of Health (DoH) submission states that reducing poor health, disability and death resulting from chronic diseases such as type 2 diabetes is ‘an urgent public health problem that requires a commensurate level of commitment and investment in prevention’. It says there is good evidence that prevention initiatives are cost-effective and improve health outcomes in Australia.<sup>230</sup> Nevertheless, the *Sustainable Health Review – Interim Report* states that only 2.74 per cent of the State’s health budget was allocated to prevention in 2015-16.<sup>231</sup>

The need to invest more in prevention is a key message of the interim report, which notes that funding currently prioritises hospitals, even though a high proportion of health costs to the community and health system arise from preventable diseases and conditions. The review panel was told that the WA health system needs to ‘incentivise a reorientation of services to focus on early intervention, show better use of existing community services and facilities, and invest in primary and community services that focus on self-management and education’.<sup>232</sup>

The DoH convened two summits in 2018 focussing on prevention and obesity: the WA Preventive Health Summit in March brought together experts to identify ways to reduce the harms associated with overweight and obesity, highlighting some regulatory and policy options for the WA government; and later in the year the Obesity Collaborative Summit gathered people within the health sector to workshop ideas on tackling obesity.

Dr James Williamson, assistant director general of the DoH clinical excellence division, said that as a result of the summits the DoH had determined that it would: develop quality standards for obesity management services; create an evidence hub to support policy development, clinician education and decision-making around pathways for people with obesity; create mechanisms for easier referral and coordinated care; and support consumer education, in particular by translating evidence into consumer-friendly language.<sup>233</sup>

The State will also be guided in its future prevention activities by the *WA Health Promotion Strategic Framework 2017-2021* and the *First Interim State Public Health Plan for Western Australia*. The six priority areas of the strategic framework are the same as those listed under ‘Objective 1 – Empowering and enabling people to make healthy lifestyle choices’ in the public health plan. These are:

- Curbing the rise in overweight and obesity

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230 The submission cites: T Vos et al., *Assessing Cost-Effectiveness in Prevention (ACE-Prevention): Final Report*, University of Queensland and Deakin University, 2010; and R Masters et al., ‘Return on investment of public health interventions: a systematic review’, *J Epidemiol Community Health*, 2017 vol. 71, pp. 827-834.

231 Department of Health, *Sustainable Health Review – Interim Report*, Strategy and Governance Division, Perth, 2018, p. 14.

232 *ibid.*, pp. 16, 23.

233 Dr James Williamson, *Transcript of Evidence*, 28 November 2018, p. 1.

- Healthy eating
- A more active WA
- Making smoking history
- Reducing harmful levels of alcohol use
- Preventing injury and promoting safer communities

The current DoH flagship program for healthy eating is LiveLighter, delivered by the Cancer Council Western Australia, which encourages people to make changes to what they eat and drink and to be more active. It also encourages public debate about obesity and the need for changes in the community. The LiveLighter advertisements, which feature a ‘grabbable gut’ and graphic images of toxic fat around the vital organs, are a key part of the campaign. There have been a number of evaluations demonstrating the campaign’s effectiveness in terms of recall. However, as CSIRO dietitian Malcolm Riley points out, such campaigns can still leave the community confused as to how much of a particular food they should be eating.<sup>234</sup> Even the 2&5 campaign to encourage people to eat two serves of fruit and five of vegetables each day – although very well-known – has not actually resulted in people meeting this guideline. According to the latest Australian Institute of Health and Welfare *Australia’s Health* report, only 50% of adults and 68% of children ate sufficient serves of fruit, and a mere 7% of adults and 5% of children ate sufficient serves of vegetables.<sup>235</sup>

Other DoH state-wide programs, run through partnerships with the not-for-profit sector, include Healthier Workplace WA, to assist workplaces to support healthier behaviours, and FoodSensations®, an adult food literacy program for middle to low income households. (A number of others are aimed at children and adolescents and will be discussed in another section.) The DoH says that these are complemented by initiatives implemented by health service providers and other government agencies with similar priorities, e.g. active transport initiatives funded by the Department of Transport.<sup>236</sup>

Diabetes WA also runs the online health programs *My Healthy Balance* and *Get on Track Team Challenge*. *My Healthy Balance* provides healthy eating information and tools such as a weight tracker and a physical activity tracker to monitor progress toward a personalised goal. It is offered as a four, six, eight or twelve week program. In 2017-18 there were 445 participants. The *Get on Track* challenge is a free team-based program which challenges teams to compete against each other by logging daily physical activity levels and fruit and vegetable intake. However, Diabetes WA says it no longer has funding for staff to actively help run and promote those programs.<sup>237</sup>

Without doubt, in the absence of well-publicised free state-sponsored programs, people turn to commercial programs, which are variable in quality. While there is a commercial aspect to some of the CSIRO’s healthy eating and diet programs, the backing of a national

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234 Dr Malcolm Riley, CSIRO Health and Biosecurity, *Briefing*, 28 September 2018.

235 Australian Institute of Health and Welfare, *Australia’s Health 2018*, Media Release, 20 June 2018.

236 Submission 20, Department of Health, p. 2.

237 Submission 9, Diabetes WA, p. 19.

scientific organisation gives people confidence that they have been tested as safe and effective. A key part of the success of the CSIRO programs, according to Professor Brinkworth, is the ongoing professional support that is provided to people who are part of a research program. He admits that can be difficult to mimic in a cost-effective way in the community.

The Health Consumers' Council raised the same issue, noting that findings from the US Preventive Services Task Force (the expert panel that decides which treatments should be

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Lifestyle interventions work, and they work very well, but a key determining success factor is the provision of professional support – Professor Grant Brinkworth, CSIRO

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offered for free under Obamacare) showed that the decisive factor in obesity care was how much attention and support they received. Participants who received more than 12 sessions with a dietitian saw significant reductions

in their rates of pre-diabetes and cardiovascular risk, while those who got less personalised care showed almost no improvement.

*This is important when linked to affordability – people may be able to afford a program for a short period of time, but it becomes an issue when they need to keep using the program over many months or years.<sup>238</sup>*

The question of whether to make weight loss programs available to people who need them (and cannot afford commercial products) is dependent on the degree to which the government can be convinced that it is a worthwhile investment. This will be analysed further in chapter five. Campaigns which aim to make people aware of what they should be eating and drinking – and what they should not be – may be effective in creating awareness, but the extent to which that translates to behaviour change is less clear.

As the AMA (WA) notes, 'wide scale prevention for nutrition-related conditions, including obesity and type 2 diabetes, has been largely focussed on education and awareness. While important, these measures alone are insufficient to tackle the complex issue of type 2 diabetes'.<sup>239</sup>

While a GP may refer a patient to a dietitian via the Medicare Benefits Scheme (MBS) Chronic Disease Management plan, the plan only allows up to five referrals per annum, to be chosen from 11 types of health professional.

### Finding 10

Public health programs aimed at losing weight to prevent chronic diseases are most effective when ongoing professional support or coaching is provided.

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238 Submission 13, Health Consumers' Council, p. 3.

239 Submission 25, Australian Medical Association (WA), p. 3.

**Finding 11**

Campaigns promoting healthy eating help to create awareness but can only be regarded as one part of the solution to the obesity problem.

**Regulatory measures can address the obesogenic environment**

Regulation can be applied in a number of areas to alter the environment to encourage healthy food choices. However only some of these areas fall under the jurisdiction of the Western Australian government. Two major policy actions that have been called for throughout this inquiry that cannot be implemented at a state level are: restricting children's exposure to marketing of unhealthy food and drink; and applying a levy on the sugar content of beverages.

In the UK, around half of soft drinks manufacturers reformulated their products to contain less sugar in the period between March 2016 when the soft drink industry levy was announced and April 2018 when it came into effect.<sup>240</sup> UK MP Andrew Selous, who the Committee met as a member of the Health and Social Care Committee and the co-chair of the All-Party Parliamentary Group on Obesity, said the levy had worked very well, particularly in the way it had caused companies to reformulate. He believed the levy should be extended to drive reformulation of other products, such as breakfast cereals and yoghurts, with the revenue used to offset the cost of fruit and vegetables.<sup>241</sup>

While the power to apply a sugar beverage tax is vested in the Commonwealth, contributors to the inquiry urged the State Government to support such a tax in its representations to the Federal Government, such as via the Council of Australian Governments (COAG) Health Council.<sup>242</sup>

The State Government supported the introduction of a levy on sugar-sweetened beverages in its submission to the Federal Government's *Select Committee into the Obesity Epidemic in Australia*.<sup>243</sup> However, while the official report of the select committee also supported a tax (Recommendation 10), five of the seven members stated in dissenting reports that they did not support the tax. This left only the Greens member and Independent member supporting the tax.<sup>244</sup>

**Finding 12**

The United Kingdom has found that the imposition of a soft drinks industry levy has led to manufacturers reformulating their products to contain less sugar.

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240 HM Treasury, *Soft Drinks Industry Levy comes into effect*, 5 April 2018, accessed 15 March 2019, <<https://www.gov.uk/government/news/soft-drinks-industry-levy-comes-into-effect>>

241 Mr Andrew Selous, Member of Parliament, United Kingdom, *Briefing*, 28 January 2019.

242 Mr Maurice Swanson, Australian Council on Smoking and Health, *Transcript of Evidence*, 7 November 2019, p. 3.

243 Government of Western Australia, Submission to Select Committee into the Obesity Epidemic in Australia, <[https://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Obesity](https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Obesity)>

244 The Senate Select Committee into the Obesity Epidemic in Australia, *Final Report*, Commonwealth of Australia, Canberra, December 2018, pp. 50, 84, 91.

### **The State can remove junk food advertising from its assets**

The State Government can regulate to restrict unhealthy food marketing in settings that it controls, such as on public transport and on billboards and posters on land owned by the State.

Dr Christina Pollard said that young adults at a recent focus group wanted help to avoid junk food.

*everywhere they went, junk food was in their face. Any strategy that restricts the sale or promotion of junk food at all times, or reinforces the steps they are trying to take, was desired.*<sup>245</sup>

The State Government has announced that it will restrict the advertising of alcohol on Public Transport Authority infrastructure, but the Obesity Policy Coalition expressed concern that unhealthy food advertising might replace the alcohol advertising once the bans came into effect.<sup>246</sup> (Legal issues have meant the bans will be phased in once the current contracts have run their course.<sup>247</sup>)

The Committee is not aware of any steps the State Government is taking to restrict the advertising of junk food from its assets, but there are examples of where this can be done. A representative from the Department of Health said that action of this nature was taken in the Australian Capital Territory, and also that the City of London was to remove junk food advertising from a whole range of assets that the City either owned or controlled.<sup>248</sup>

The Australian Capital Territory ban was introduced in 2015. In announcing the ban, the Minister for Territory and Municipal Services said that 'while the Federal Government retains regulatory control of substantial advertising policy, it is important that the ACT Government does what it can to ensure that the advertising on our public assets is suitable and appropriate and in line with the values of the Canberra community.' Such a ban reflected both the values of the community and government objectives in restricting the advertising of products which were damaging to the health of the population.<sup>249</sup>

UK Behavioural Insights Team head of health Hugo Harper said that while governments do not have the budget to compete with junk food manufacturers in terms of buying media space, they could at least regulate to ensure that those media spaces were not awash with the wrong messages.<sup>250</sup>

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245 Dr Christina Pollard, Curtin University, *Transcript of Evidence*, 19 September 2018, p. 10.

246 Submission 16, Obesity Policy Coalition, p. 9.

247 Submission 20, Department of Health p. 3; Hon Rita Saffioti, Minister for Transport, 'End in sight for alcohol advertising on public transport', Media Statement, 29 June 2018..

248 Ms Denise Sullivan, Department of Health, *Transcript of Evidence*, 28 November, p. 7.

249 Mr Shane Rattenbury MLA, Minister for Territory and Municipal Services, ACT, *Buses will no longer advertise junk food, alcohol, gambling and weapons*, media release, 28 September 2015.

250 Mr Hugo Harper, Behavioural Insights Team, *Briefing*, 30 January 2019.



**Recommendation 9**

The State Government regulates to restrict unhealthy food marketing in settings solely within its control.

**Mandatory kilojoule labelling on menus is helpful**

Most other states and territories in Australia have implemented mandatory kilojoule labelling on menus at quick service food outlets (e.g. fast food and other take-away food stores). The WA Department of Health is currently investigating the feasibility of mandatory kilojoule labelling on menus at quick service food outlets here in Western Australia.<sup>251</sup>

The premise is that nutritional labelling may help people to make healthier food choices; however, there is no consensus on whether such labelling is effective in promoting healthier behaviour. A recent Cochrane review found that evidence was lacking in this area with many studies being either inconclusive or of very low quality. There does not appear to be strong evidence that nutritional labelling in itself provides a change in purchasing choices but, and as the authors suggest, can be used as part of a wider suite of measures to tackle obesity.<sup>252</sup>

The Obesity Policy Coalition is supportive of such labelling and cites the evaluation the New South Wales government conducted into its kilojoule menu labelling legislation. That report says that the display of information, together with supporting public education, resulted in a significant decrease of the median kilojoules purchased during the evaluation period, with an overall reduction of 519 kilojoules – equivalent to a 15 per cent decrease.<sup>253</sup>

That report highlights the importance of a consumer education campaign to support the objectives of the legislation. The campaign used digital, social and radio media, targeting high consumers of fast food. The report found:

*While it is not possible to attribute the reduction in kilojoules to the intervention alone, it nevertheless provides an indication of the potential population health impact of kilojoule menu labelling when consumers make healthier choices in a fast food setting .... the information assists the consumer choose, not tells the consumer what to choose.*<sup>254</sup>

**Recommendation 10**

The State Government implements kilojoule menu labelling to assist consumers to make healthier choices in fast food settings, in a manner that is meaningful for consumers.

**Could the Healthy Options WA policy be applied more broadly?**

The Department of Health's *Healthy Options WA* food and nutrition policy applies to all WA Health services and facilities. The aim of the policy is to:

251 Submission 20, Department of Health p. 3.

252 Rachel A Crockett et al., 'Nutritional labelling for healthier food or non-alcoholic drink purchasing and consumption', Cochrane Systematic Review, Cochrane Library, 27 February 2018.

253 Submission 16, Obesity Policy Coalition, p. 10.

254 Government of New South Wales Food Authority, *Evaluation of kilojoule menu labelling*, Government of New South Wales, p. 26.

*maintain and improve the health of staff and the broader community by providing health care environments that support and model nutritious and healthy eating options. It supports outpatients, visitors and staff to make healthier choices by promoting and increasing access to affordable, nutritious and tasty food and drinks relative to energy dense nutrient-poor options.*<sup>255</sup>

The policy covers all food and beverage outlets under the Department's control, including vending machines, catering and fundraising initiatives. The policy uses a traffic light classification system for food and drinks – green, amber or red. The assigned category defines the permitted sale, display and promotion of food and drinks.

Green foods are the healthiest choices – low in saturated fat, added sugar and salt. Amber foods can contribute to excess energy intake and should be eaten in moderation, while the red category contains foods that are high in saturated fat, salt and/or sugar. The policy dictates that at least half of the food and drink offered should be in the green category, with no more than 20 per cent in the red category. For fundraising activities, the use of any food/drink in the red category is not permitted.<sup>256</sup>

The Department of Health advises that its audit of compliance with *Healthy Options WA Policy* has been completed, although the review has not yet been released. It said at a hearing with the Committee in November that there would likely be a strengthening of the policy following the review.<sup>257</sup>

The Obesity Policy Coalition recommends that the State Government develop and mandate a healthy food procurement policy for all government-funded settings. In Victoria, for example, funding for recreation and community settings is tied to meeting government criteria for the provision of healthier food.<sup>258</sup>

#### **Recommendation 11**

The State Government extends the Healthy Options WA policy to all government-funded settings.

#### **Planning laws should take health and wellbeing into consideration**

Large-scale studies investigating the link between fast food restaurant location and socioeconomic characteristics have shown that these restaurants are more accessible in areas with greater socioeconomic disadvantage. One study explored the distribution of fast food outlets across Melbourne. Data collected at a postcode level on franchises from Australia's five largest fast food chains (McDonalds, Pizza Hut, Kentucky Fried Chicken, Red Rooster and Hungry Jacks) showed that the lowest income postcodes had 2.5 times more fast food outlets per person than the highest income postcodes. Another Victorian study

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255 WA Health, *Food and Nutrition Policy for WA Health Services and Facilities*, Western Australia, June 2015, p. 1.

256 *ibid*, p3; For a full description of green, amber and red food and drinks see <https://ww2.health.wa.gov.au/healthyoptions>.

257 Submission 20, Department of Health p. 3.

258 Submission 16, Obesity Policy Coalition, p. 10.

found shorter travel times to the nearest fast food restaurant for those living in the most disadvantaged areas.<sup>259</sup>

Greater locational access is associated with poor food choices and a greater obesity risk, and the factors mentioned above create an environment with increased opportunities to purchase and consume fast food.<sup>260</sup> The Australian Health Promotion Association notes a study conducted in the US that found that participants who lived within one kilometre of a fast-food restaurant were more likely to be obese. The association says another US study found that areas with a high density of fast food outlets compared to healthier options was more significantly associated with increased levels of obesity.<sup>261</sup>

Current planning legislation in Western Australia does not allow for consideration of the health impact that businesses such as fast food outlets can have on communities. A number of contributors to the inquiry called for planning and policy mechanisms that may help control the proliferation of fast food restaurants within vulnerable communities.<sup>262</sup>

In the UK, Public Health England and the National Institute for Health and Clinical Excellence (NICE) advise that local authorities should restrict planning permission for hot food takeaways in specific locations, such as near schools. Newcastle City Council was one of the first local government authorities in the UK to have a health objection in a planning application for a fast food outlet. In examining the exclusion zone policies it decided to implement a time-based exclusion zone rather than the commonly used 400-metre radius. The zone is based on a 10-minute walk-time from secondary schools. It was developed through an analysis of actual walking routes for each secondary school which took into account barriers affecting the walking speed (such as metro lines) to identify a realistic 10-minute walk time.<sup>263</sup>

The Obesity Policy Coalition says that recent changes to the State's Public Health Act, which establishes a role for local governments in promoting public health, may be undermined if planning laws are not aligned with this policy. It recommends the amendment of the *Planning and Development Act 2005* to clarify the relationship between public health and planning. 'This would allow health and wellbeing to be a relevant consideration in fast food restaurant planning applications and other planning decisions.'<sup>264</sup>

Amendments to planning regulations were a topic of discussion at the WA Preventive Health Summit in 2018, according to the Department of Health:

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259 LE Thornton et al., 'Fast food restaurant locations according to socioeconomic disadvantage, urban–regional locality, and schools within Victoria, Australia', *SSM – Population Health*, vol. 2, 2016, pp. 1–9.

260 Submission 20, Department of Health, pp. 2-3.

261 Submission 24, Australian Health Promotion Association (WA branch), pp. 3-4.

262 Mr Maurice Swanson, Australian Council on Smoking and Health, *Transcript of Evidence*, 7 November 2019, p. 17; Submission 24, Australian Health Promotion Association, (WA branch), p. 3.

263 Ms Kim McGuinness, Newcastle City Council, *Briefing*, 4 February 2019; Newcastle City Council, 'Hot Food Takeaways – Frequently Asked Questions', accessed 14 March 2019, <<https://www.newcastle.gov.uk>>

264 Submission 16, Obesity Policy Coalition, p. 4.

*A comprehensive, cross-sectoral approach is needed to create urban environments that support people to achieve and maintain a healthy, active lifestyle. Ideally, the protection and promotion of community health and wellbeing should be integral to planning legislation, policy and processes.*<sup>265</sup>

And, while toolkits exist for urban planners, such as Healthy Active by Design, ‘regulation is necessary to ensure an equitable approach to urban planning for better health outcomes.’<sup>266</sup> The Department has pointed out that planning acts in both Queensland and Tasmania have been amended to encompass and consider community health and wellbeing as a social need.<sup>267</sup>

#### **Recommendation 12**

The State Government amends the *Planning and Development Act 2005* to enable health and wellbeing to be a relevant consideration in fast food restaurant planning applications.

### **People and food manufacturers can be nudged to behave better**

People struggling with losing weight and making healthy eating choices can be assisted to change their habits with techniques used by psychologists and counsellors, such as cognitive behavioural therapy (CBT) and mindfulness. As clinical psychologist Carol Rolston explained, mindfulness can help people who are eating poorly as a result of emotional stress to ride it through by anchoring themselves in the present moment. CBT might involve practising techniques to slow down the speed of eating, changing the time and place you eat, or taking a different route to avoid exposure to certain foods or triggers.<sup>268</sup>

Behaviour change theory can also be applied at the population level via government policy. How might policy makers restructure environments to facilitate better choices? How can individuals be encouraged to make better decisions? These interventions have become known as ‘nudges’. They differ from other ways to achieve compliance – such as education and legislation – in that they propose positive reinforcement and indirect suggestions as ways to influence people’s behaviour and decision-making. Richard Thaler, who won the Nobel prize in economics in 2017 for his work in this area, said that putting fruit at eye level counts as a nudge, but banning junk food does not.<sup>269</sup>

The UK government set up a Behavioural Insights Team (BIT) in 2010 which is now run as a social purpose company jointly owned by its employees, the UK government and innovation charity Nesta. Health and wellbeing is one of about a dozen policy areas that it focuses on. Former BIT director of health Michael Hallsworth argued that public health should do two things differently:

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265 Submission 20, Department of Health, p. 3.

266 *ibid.*

267 *ibid.*; Ms Denise Sullivan, Department of Health, *Transcript of Evidence*, 28 November, p. 6.

268 Ms Carol Rolston, *Transcript of Evidence*, 21 November 2018, p. 4.

269 Richard H Thaler and Cass R Sunstein, *Nudge: Improving Decisions about health, wealth, and happiness*, Yale University Press, New Haven, CT, 2008, p. 6.

- first, it should focus on approaches that require very little or no effort, particularly substitution, rather than trying to ensure people make a conscious and effortful conversion to a healthy lifestyle
- second, it should be more willing to help people shift to marginally healthier options, even if they aren't the healthiest available.<sup>270</sup>

Repeated marginal changes should not be undervalued, BIT says, because they could lead to wider changes in the food system; for example, creating new incentives for food producers and retailers to develop healthier versions of similar foods would mean they were competing for these marginal choices. Even those who did not shift their behaviour would get health benefits from such food reformulation.

Changing the way information and food is presented can also change behaviour. As Roberto and Kawachi (2016) point out, the key is not in convincing someone that an apple is more healthy than a cookie, but in ensuring the apple is the more convenient, attractive and normative food to choose. Simply giving a food a descriptive name – such as 'dinosaur trees' for broccoli and a 'big bad bean burrito' instead of a vegetarian burrito – can make foods more attractive and enjoyable.<sup>271</sup> Shaping environments to influence behaviour is clearly a success for marketing of fast food that is "engineered to stimulate inclination over judgement" and "trigger behaviours that worsen our health".<sup>272</sup>

BIT chief executive David Halpern and head of health Hugo Harper reiterated that the process was to nudge people in the right healthy direction.<sup>273</sup> People might know what they should do but that does not mean they do it. When distracted they tended to eat on auto-pilot (such as when watching television). Mr Harper said that while information campaigns and tools such as the Eatwell Guide (similar to the Australian Dietary Guidelines health eating plate) were necessary, they were not sufficient to deliver healthy behaviour.<sup>274</sup>

Methods of driving product reformulation were premised on the psychology of what people would respond to in making healthy decisions, according to Dr Halpern. The choice architecture based on placement, portioning, price, labelling and signage were designed to move just enough consumers on the price point to tip the market. If enough consumers stopped buying a high sugar product due to an increase in price (as a consequence of a sugar tax, for example) in favour of one with less sugar, the manufacturer would be forced to reformulate the product to remain competitive.<sup>275</sup>

A similar strategy could be applied to supermarkets as a whole; for example, at US grocery store Pay & Save green arrows leading to the fruit and vegetable aisle resulted in 9 out of 10

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270 Michael Hallsworth and Michael Sanders, *Rethinking public health using behavioural science*, 23 August 2017. Available at <https://www.behaviouralinsights.co.uk>

271 Christina A. Roberto and Ichiro Kawachi, 'An Introduction to Behavioural Economics and Public Health', in *Behavioural Economics and Public Health* (eds) Christina A. Roberto and Ichiro Kawachi, Oxford University Press, 2016.

272 Theresa Marteau et al., 'Judging nudging: can nudging improve population health?', *BMJ*, 2011, no. 342, d228, 9 January 2011.

273 Dr David Halpern and Mr Hugo Harper, Behavioural Insights Team, *Briefing*, 30 January 2019.

274 Mr Hugo Harper, Behavioural Insights Team, *Briefing*, 30 January 2019.

275 Dr David Halpern, Behavioural Insights Team, *Briefing*, 30 January 2019.

customers visiting the fresh food products first; and designated areas for fruit and vegetables in supermarket trolleys led to increased purchases of fresh foods (and profits for the grocer, given greater returns).<sup>276</sup>

If it was clear to businesses that consumers deliberately chose their local supermarket according to healthy alternatives – for example by healthier end-of-aisle promotions ‘instead of the Tim Tams’ – Dr Halpern hypothesised that competitive pressure could see supermarkets change their behaviour to enable shoppers to meet their goal of healthier eating.<sup>277</sup>

A scoping review of the power of supermarkets in the Australian food system conducted by WA researchers confirms that supermarkets act as the primary gatekeepers and have not been challenged by government and consumers.<sup>278</sup>

The review found that the growth of supermarket own brands and a strategy of selling only one or two branded alternatives could be detrimental to public health nutrition if products were of lower quality. Selling products with poor nutritional quality and encouraging consumption of these foods via pricing, placement and promotional strategies had an impact on nutritional health. Interventions to restrict availability of these unhealthy foods had been proposed, but supermarkets also have a role to play in positively affecting the population’s dietary intake by making fresh, healthy foods more available, affordable and accessible. The fact that supermarkets had control over own brand products presented an opportunity for public health professionals to work with them to improve the nutritional quality of the food supply.

### Finding 13

Helping people to choose a few healthier options, rather than expecting people to embrace all of the healthiest options, is a realistic approach to public health as it takes into account the way people actually behave.

### Recommendation 13

The Department of Health investigates nudging strategies to shift the shopping habits of consumers to promote healthy food and drink choices, and promote that with WA food retailers.

## GPs find it hard to talk about weight

As will have become clear from the previous chapter, GPs play a critical role in providing the immediate management plan upon diagnosis of type 2 diabetes. They also test for pre-diabetes, usually from the age 50, but they can also play a key role in prevention long before that by monitoring a patient’s weight. However, evidence to the inquiry suggests that many

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276 Dimitry Apollonsky, *What is nudging? How to influence and control and audience*, 3 July 2015, accessed 13 March 2019, < <https://apollonsky.me> >

277 Dr David Halpern, Behavioural Insights Team, *Briefing*, 30 January 2019.

278 CE Pulker, GSA Trapp, JA Scott and CM Pollard, 'What are the position and power of supermarkets in the Australian food system, and the implications for public health? A systematic scoping review', *Obesity Reviews*, vol. 19, World Obesity Federation, February 2018, pp. 198-218.

GPs are uncomfortable having conversations with patients about their weight, and have not had training in how to approach it. Local GP Patrick Garratt noted:

*There are lots of interventions that can be done, but really you have got to start speaking to people about it. I think one of the reasons doctors do not ask patients about their obesity is partly they are embarrassed, but they do not know. I speak as a GP.*<sup>279</sup>

The Health Consumers' Council, which surveyed 748 people in relation to their experiences of losing weight, reported that some people were surprised that no health professional had ever mentioned their weight to them, despite it being obvious that they were overweight. Others had found interactions unhelpful, probably due to insufficient time, as well as the health professional's lack of knowledge about the range of support available for weight loss.<sup>280</sup>

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It is also absolutely worth getting the message out to GPs that talking to patients about weight is okay... Currently patients are embarrassed to bring it up, but they do want to engage.

– Dr Michael Mosley

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WA Primary Health Alliance (WAPHA) representative Christine Kane also noted that GPs find it difficult to start a conversation about weight – partly because of the lack of time in a standard appointment – and said that the incidence of a patient's BMI being recorded in general practice was very low.<sup>281</sup>

Diabetes educator Patricia Marshall also mentioned the inadequacy of a 10-minute GP appointment for discussing weight and diet, which could result in simplistic advice:

*I hear so many people say, 'The doctor told me to watch my diet.' I do not think watching your diet is going to change anything. But, of course, you go to the doctor and see the doctor for 10 minutes. Most initial consultations with the dietitian will be an hour. You can do a lot more in an hour than you can in 10 minutes. It would really be much more cost effective for people to be spending more time with people like dietitians than constantly going to the GP and being told to 'watch their diet'.*<sup>282</sup>

WAPHA, which plays a key role in supporting GPs, said it was hoping to acquire some scripting for weight management conversations developed by behavioural psychologists in New South Wales for GPs. Ms Kane said the Cancer Council had also developed some resources for GPs and the RACGP provided clinical support and guidance in this area.

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279 Dr Patrick Garratt, *Transcript of Evidence*, 30 June 2018, p. 7.

280 Submission 13, Health Consumers' Council, p. 2.

281 Mrs Christine Kane, WA Primary Health Alliance, *Transcript of Evidence*, 21 November 2018, p. 2.

282 Mrs Patricia Marshall, Curtin University, *Transcript of Evidence*, 19 September 2018, p. 5.

*It is an important area within general practice that does require a lot of focus because the GPs are really, really well placed to be starting the process of helping to navigate the person through the system.*<sup>283</sup>

Having a conversation about weight – and knowing what to advise – is not a problem for all GPs, however. Dr Andrew Kirke – rural GP, director of the Rural Clinical School of Western Australia, and president of the Rural Doctors' Association of Western Australia – says '90 per cent of what I talk about as a GP is prevention or lifestyle management of disease'. It was also a large component of what he talked about in his role as a university lecturer. Students doing their clinical learning in a rural setting had contact with dietitians, diabetes educators and primary health care.

*We are not asking GPs to sit down and make a meal plan for the patients, but the importance of appropriate diet and its relevance to their health is certainly reinforced in the consultation through that, for example, on diabetes or preventing diabetes.*<sup>284</sup>

GPs with a particular interest in diet, such as Dr Garratt, do in fact talk to patients about cooking and food. 'Part of my training did not involve those things, but they are things that I have learned.'<sup>285</sup> He says the problem with some of the messages currently taught by GPs, dietitians and nutritionists is that they are based on science that is 50 years old 'that was not the best.' GPs needed to be upskilled so that patients were given a consistent message.<sup>286</sup>

#### Finding 14

GPs are not comfortable broaching the topic of a patient's weight and may not have the tools to assist them in providing advice on an appropriate diet.

#### Recommendation 14

The Department of Health and the WA Primary Health Alliance should work with the medical profession to ensure that GPs' knowledge of nutrition is adequate and that they feel confident discussing weight issues with patients.

### Children receive limited assistance for weight issues

Unhealthy diets and overweight and obesity are significant issues for Australian children. The latest available figures from the Australian Institute of Health and Welfare (2014–2015) show that in Australia, the overall proportion of overweight or obese children aged 5–14 years is 26.1 per cent. The proportion of overweight children in Western Australia in this age group is estimated to be 22.1 per cent. This figure has decreased from 26.5 per cent, recorded in 2011–12.<sup>287</sup>

283 Mrs Christine Kane, WA Primary Health Alliance, *Transcript of Evidence*, 21 November 2018, p. 3.

284 Dr Andrew Kirke, Rural Doctors' Association of WA, *Transcript of Evidence*, 28 November 2018, p. 4.

285 Dr Patrick Garratt, *Transcript of Evidence*, 30 June 2018, p. 8.

286 *ibid.*, pp. 4–5.

287 Australian Institute of Health and Welfare, *An interactive insight into overweight and obesity, children's headline indicators*, 18 September 2018, accessed 7 March 2019, <<https://www.aihw.gov.au/>>



Overweight and obesity increases a child's risk of poor physical health and is a risk factor for morbidity and mortality in adulthood.<sup>288</sup> Research from *Growing up in Australia: The Longitudinal Study of Australian Children* has shown that obesity becomes more entrenched throughout early childhood and possibly less reversible by the middle school years. Persistent overweight/obesity is more common among the most disadvantaged children.<sup>289</sup>

Obese children have a greater risk of developing asthma, type 2 diabetes, cardiovascular conditions and certain cancers than non-obese children.<sup>290</sup> Whereas once type 2 diabetes was considered a disease of adulthood this is no longer the case. Currently in Western Australia, 1 in 12 children diagnosed with diabetes has type 2 and 6 per cent of these are diagnosed at less than 10 years of age.<sup>291</sup>

Aboriginal children have a 20-fold higher incidence of type 2 diabetes. From 2000-2017 the mean increase in incidence for Aboriginal children was 12.5 per cent.<sup>292</sup> Type 2 diabetes also disproportionately affects individuals and families from low socio-economic status backgrounds; 27 per cent of children with type 2 diabetes live in areas of the highest socioeconomic disadvantage.<sup>293</sup>

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Amongst children, 39% of the energy in their diets comes from 'junk' food. Australian households spend 58% of their food budget on unhealthy foods and drinks and just 15% on fruit and vegetables.

– Obesity Policy Coalition

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There is only one public health service catering for obese children. Other advice and programs for healthy eating and maintaining a healthy weight are offered by the DoH (usually in partnership with other organisations) and the Department of Education.

### **Department of Health programs**

Children with severe obesity can be referred by their doctor to the Healthy Weight Service (HWS) at Perth Children's Hospital (PCH). Referrals require relevant measurements and blood investigations/evidence of obesity related comorbidities.<sup>294</sup> It is during this screening process that some of the children are diagnosed with type 2 diabetes, according to Mark Shah from the Diabetes and Endocrine Health Network.<sup>295</sup>

The head of department responsible for the Healthy Weight Service, Professor Elizabeth Davis said:

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288 World Health Organisation, *Commission on Ending Childhood Obesity*, accessed 8 March 2019, <<https://www.who.int/end-childhood-obesity/facts/en/>>

289 Australian Institute of Health and Welfare, *An interactive insight into overweight and obesity, children's headline indicators*, 18 September 2018, accessed 7 March 2019, <<https://www.aihw.gov.au>>

290 *ibid.*

291 Submission 33, Professor Elizabeth Davis, Perth Children's Hospital p. 1.

292 *ibid.*

293 *ibid.*

294 Perth Children's Hospital, *Health Weight Service Referral Criteria and Guidelines*, accessed 7 March 2019, <<https://pch.health.wa.gov.au>>

295 Mr Mark Shah, Diabetes and Endocrine Health Network, *Transcript of Evidence*, 12 September 2019, p. 7.

*The chronic and complex nature of paediatric obesity and T2D require a service model that is intense and prolonged with care provided by a specialised and comprehensive multi-disciplinary team. At PCH, the Healthy Weight Service (HWS) and the T2D service provides this care to affected children and their families. Consistent with evidence, both services focus on supporting families to attain and sustain healthy dietary practices and individualised dietary interventions whilst ameliorating barriers to change.*<sup>296</sup>

Professor Davis says that restrictive diets are not suitable for children as they can produce nutritional deficiencies and inadequate growth. A balanced diet, focusing on low GI (glycaemic index) carbohydrates, healthy fats, lean meats and adequate fruit and vegetables are the current recommendations.<sup>297</sup>

It is not clear where parents or caregivers might go to source what is a balanced diet. The Department of Health website says in respect to 'foods children need' that 'regular meals and a wide variety of different foods will ensure that they have the nutrients needed to grow and develop', and points readers to a variety of external places and websites for further information.<sup>298</sup> In another area of the website, in relation to best food choices for toddlers, there is a link provided to access the website of the Australian Dietary Guidelines, where one might further search for information to support food choices.<sup>299</sup>

Some children may have been among the 142 in six metropolitan locations in 2017–18 who accessed the Better Health Program, run by the Better Health Company with DoH funding. The free program, for 7 to 13 year olds who are above a healthy weight (and their families), takes place after school for two hours each week for 10 weeks. Families can self-refer or be referred by health professionals, organisations, friends and family members. The program teaches participants about food serving sizes, menu planning, reading labels and eating out, among other things. According to its website, the program has helped children who are above a healthy weight to reach a healthier weight.

The WA Country Health Service (WACHS) funded a pilot of this program for 2–4-year-olds and 7–13-year-olds and their parents in term four of 2018. Eleven regional locations were shown as places that were currently offering or had recently offered the program.

### ***Department of Education programs***

The Department of Education undertakes a variety of actions to support healthy eating, including the Crunch&Sip program and the development of a Healthy Food and Drink Policy.<sup>300</sup>

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296 Submission 33, Perth Children's Hospital, p. 2.

297 *ibid.*

298 Department of Health, *Food for kids*, accessed 7 March 2019, <[https://healthywa.wa.gov.au/Articles/F\\_I/Food-for-kids](https://healthywa.wa.gov.au/Articles/F_I/Food-for-kids)>

299 Department of Health, *Tucker without tantrums – a guide to healthy eating for your toddler*, accessed 7 March 2019, <<https://healthywa.wa.gov.au/>>; Eat for Health, *Australian Dietary Guidelines*, accessed 7 March 2019, <<https://www.eatforhealth.gov.au/>>

300 Ms Lisa Rodgers, Director General, Department of Education, Letter, 8 February 2019, p. 1.

Crunch&Sip is a set break to eat fruit or salad vegetables and drink water throughout the day in the classroom. Students 're-fuel' with fruit or vegetables during the morning or afternoon. Some of the objectives of Crunch&Sip are to increase awareness of the importance of eating vegetables and fruit and drinking water, and to encourage parents to provide students with fruit or vegetables every day.<sup>301</sup>

The program was introduced into WA primary schools in 2005 and Diabetes WA says it has had a positive impact.<sup>302</sup> Healthway is currently sponsoring the program and there is now a stronger promotion on having vegetables in this break.<sup>303</sup>

The Department's *Healthy Food and Drink Policy* has been developed in consultation with the Western Australian Canteen Association. The policy applies to the food and drinks served by public school canteens/food services as well as to environments where the principal is directly responsible for the supply of food and drinks e.g. classroom rewards, school camps and excursions. A traffic light system is used to code the food and drinks, with products classified as red not made available to students.<sup>304</sup>

Many schools (around 400) also have access to the School Breakfast and Nutrition Education Program, delivered by Foodbank and jointly funded by the departments of health and education. The program targets schools with a low Index of Community Socio Education Advantage and/or a significant subset of students at risk of disadvantage. Schools registered with the program receive breakfast food products free of charge and are eligible to access the Food Sensations nutrition education lessons and resources. Given the UK Parliament's concern that breakfast cereals high in sugar are a contributor to childhood obesity,<sup>305</sup> it would be in order to ensure the food products meet nutritional guidelines and that portion sizes are such that over-eating is not a risk.

In terms of the curriculum, the Department of Education advises that schools promote healthy eating and active lifestyles through the Health and Physical Education areas. From pre-primary to year 6, students are taught skills such as comparing food labels, choosing healthier foods, and how to improve the nutritional value in meals. Students are also shown ways in which health messages can influence health decisions and behaviours.<sup>306</sup>

Lessons for secondary students include information about healthy practices that support and promote good health, and the influence of messages in the media relating to body image, fast food and alcohol. Students analyse the Australian Dietary Guidelines for healthy food choice and serving sizes, and explore how traditions, foods and practices of different cultures enhance the wellbeing of the whole community.<sup>307</sup> Any analysis of healthy food

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301 Crunch&Sip, *About Crunch&Sip*, accessed 7 March 2019, < <http://www.crunchandsip.com.au> >

302 Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2018, p. 14.

303 Crunch&Sip, *History*, accessed 7 March 2019, < <http://www.crunchandsip.com.au/> >

304 Department of Education, *Healthy Food and Drink*, accessed 12 March 2019, <<http://det.wa.edu.au/healthyfoodanddrink/detcms/portal/>>

305 Mr Andrew Selous and Ms Diana Johnson, Members of Parliament, United Kingdom, *Briefing*, 28 January 2019.

306 Ms Lisa Rodgers, Department of Education, Letter, p. 1.

307 *ibid.*, p. 2.

choices should take into account the concerns expressed to the Committee that the Australian Dietary Guidelines may not be appropriate for everyone.

Teachers can also access the online Refresh.ED Food and Nutrition Teaching Resources for students from kindergarten to year 10. The Child Health Promotion Research Centre at Edith Cowan University was contracted to develop, promote and evaluate the support materials, which assist teachers in including food and nutrition elements across the learning areas.<sup>308</sup>

The Committee does not have a figure for the number of hours per year that teachers spend on nutrition and healthy eating. Hugo Harper, head of health at the UK's Behavioural Insights Team, said that school lessons on healthy eating and nutrition were usually ineffective in changing children's eating behaviours – mainly because they were too infrequent. While a 90 minute lesson each week might have an impact, two lessons throughout the year would not.<sup>309</sup>

### **Access to nutritional food varies**

Nutritional requirements are not always easily met. The Committee was given access to a research report by Christine Jeffries-Stokes and Annette Stokes of the Rural Clinical School of WA, which examined the diet of 75 children (55 Aboriginal and 20 non-Aboriginal) aged 4 to 18 years in three Northern Goldfields communities. It found that in the preceding 24 hours:

- 22% had not eaten fruit and 19% had not eaten vegetables
- 27% had eaten at least one take-away meal
- 63% had consumed drinks containing carbonated sugar
- 16% of Aboriginal respondents and 35% of non-Aboriginal respondents had missed at least one meal

The authors commented that affordability of food, family and individual preferences, cooking and presentation skills and knowledge of healthy diet are all important factors in whether or not individual children are offered and consume a healthy diet. The report concluded that children in the Northern Goldfields were at high risk of nutrition related disease.<sup>310</sup>

The affordability of healthy options was raised in another submission:

*One of the many reasons we see kids with 1.25Lt of soft drink is the parents want to give their children energy and have a limited budget. When a red capsicum is \$15 / Kg and a bottle of soft drink is a few dollars and you have 6*

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308 Department of Health, *Refresh.Ed Food and Nutrition Teaching Resources*, accessed 12 March 2019, <<https://www.refreshedschools.health.wa.gov.au>>

309 Mr Hugo Harper, Behavioural Insights Team, *Briefing*, 30 January 2019.

310 Christine Jeffries-Stokes, Annette Stokes and Lachlan McDonald, *Tjitjiku Myaee – The diet of young people in remote Western Australia*, unpublished document, 2010.

*children to feed. All those carbohydrate dense foods that we tell them to limit are the cheapest to buy.*<sup>311</sup>

In relation to the link between diet and type 2 diabetes, one dietitian made the comment:

*If the goal is to seriously reduce the impact of diabetes let's shift focus to the prenatal to 5 years – that's the critical transition period from infancy to childhood, which sets the foundations for health into adulthood. Underfed children are predisposed to being obese youth and adults.*<sup>312</sup>

The diet of Aboriginal children and teenagers before and during pregnancy is also of concern. Whether anything is being done to assist groups that are more vulnerable to type 2 diabetes and overweight/obesity will be considered in the next chapter.

### **The diet of the mother affects the child**

A number of contributors noted that children are disadvantaged right from birth if their mother has had a poor diet before and during pregnancy.<sup>313</sup> Explaining that the child of a mother with type 2 diabetes has a genetic predisposition to the condition, reproductive biologist Rebecca Robker said it was very important for women to have good nutrition before they became pregnant and in the teenage years.

The Dietitians Association of Australia and Australian Diabetes Educators Association cite studies that show that the offspring of mothers exposed to extreme hunger in early gestation are twice as likely to consume a high-fat diet in later life. Another study has demonstrated that improving health and nutritional status of both men and women before pregnancy improves long term health outcomes for mothers and children across generations.<sup>314</sup>

Professor Brand-Miller says we are in a cycle of bigger birth weight babies 'eating to appetite' and being overweight as children. 'For babies born on the ninetieth percentile for birth weight, the chances that they stay above the nineties are very, very high'. Children between the 85<sup>th</sup> and 95<sup>th</sup> percentile are considered overweight, and above the 95<sup>th</sup> they are considered obese.<sup>315</sup>

### **An understanding of social and cultural factors is critical**

The founders of Cities Changing Diabetes – Steno Diabetes Center in Copenhagen, University College London and the pharmaceutical company Novo Nordisk – established the program in recognition that not enough was known about how societal factors and individual behaviour influence an individual's risk of developing type 2 diabetes. They chose to focus on the urban environment, given that two-thirds of the 415 million people worldwide with diabetes live in and around cities. While biomedical approaches to treating diabetes had contributed to vast

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311 Submission 29, closed submission.

312 Submission 29, closed submission.

313 *ibid.*, Professor Rebecca Robker, University of Adelaide; Professor Alex Brown, South Australian Health and Medical Research Institute; Professor Jennie Brand-Miller, University of Sydney.

314 Submission 35, Dietitians Association of Australia/Australian Diabetes Educators Association, pp. 13-14.

315 Professor Jennie Brand-Miller, University of Sydney, *Transcript of Evidence*, 17 October 2018, p. 7.

reductions in mortality and morbidity, the fact that the prevalence of both obesity and diabetes was continuing to rise indicated a need to look at what was leading to these conditions.<sup>316</sup>

The researchers started by conducting more than 550 interviews with at-risk and diagnosed people in five major cities – Copenhagen, Houston, Mexico City, Shanghai and Tianjin. This has now grown to 1500 interviews with 19 cities involved. The qualitative interviews are analysed to help to determine where the system failures are taking place.

Professor David Napier, one of the founders of the program and a professor of medical anthropology at University College London, explained that one of the tools for determining the areas of unmet need was the concept of the rule of halves. The general rule holds that for all of the people living with type 2 diabetes, half are diagnosed; half of those again are receiving treatment; half of those again are adhering to the treatment; and the final half are living without complications.<sup>317</sup> It was only people in this final group – which might represent a very small proportion of people in some places – whose experience was not mediated by social, cultural, environmental and psychological factors. These were the ones for whom clinical medicine was working. It was the others – the majority – who governments needed to find and target.<sup>318</sup>

The qualitative research probes issues such as a person's attitude to health services (what is the level of trust?), their view of nourishment (for example, if food had been scarce in the past they may now overeat or overfeed the children/grandchildren), their perception of a desirable body size, and cultural attitudes to food, for example.

Professor Napier said people who do not know they are pre-diabetic have no opportunity to reverse it. The poor and those that are socially excluded were the most disadvantaged because they were not presenting to health practitioners, and clinical medicine was not designed to assist them. However, those in wealthy communities were also at risk. In Houston, some of those at greatest risk were the upper middle class living in communities in suburbia who spent a big portion of their day commuting to work by car.

Interventions could be at the city or local level. They might be faith-based, as in one of the initiatives in Houston. The Cities Changing Diabetes study had found that for many Houstonians, their house of faith was their primary community. Empowering congregational health leaders or ministers was therefore a logical place to start in trying to reach populations vulnerable to diabetes. The Faith and Diabetes Initiative, voted on as a priority initiative by Cities Changing Diabetes Houston stakeholders, aimed to assist houses of faith across Greater Houston in strengthening or building a Congregational Health Ministry by

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316 Cities Changing Diabetes, *Urban diabetes: Understanding the challenges and opportunities*, Novo Nordisk, 2015.

317 The 'rule' is not always hard and fast. A study to determine this measurement was conducted in Australia in 2018 and found that the rules of halves applied to all stages apart from diagnosis, with 70% of type 2 diabetes cases diagnosed rather than 50%. (In Emma Sainsbury, Yumeng Shi, Jeff Flack and Stephen Colagiuri, *Burden of Diabetes in Australia: It's Time for More Action*, The Boden Institute, University of Sydney, with grant support from Novo Nordisk, Sydney, July 2018.)

318 Professor David Napier, Cities Changing Diabetes, *Briefing*, 29 January 2019.

developing a range of diabetes prevention and awareness tools that they can share with their congregations.<sup>319</sup>

In Copenhagen, knowledge of a vulnerable population has led to a mentoring scheme. Unemployed men over the age of 45 who had a limited social network were unlikely to join or remain in the city's Center for Diabetes programs. A mentor program was set up to help build a peer-to-peer social network for vulnerable men, so that they feel motivated to make lasting lifestyle changes.<sup>320</sup>

The Cities Changing Diabetes program is built on a model of creating partnerships between city leaders and urban planners, academics, community leaders, healthcare professionals, commissioners and businesses. It has created an Urban Diabetes Toolbox (which any city can use) which is designed to assist city and health leaders to create their own individual action plan for tackling diabetes. The toolbox includes information built on the experience of participating cities around the world and includes Setting the goal, Mapping the Challenge, Understanding Risk and Vulnerability, Designing Interventions and CCD Briefing Books. Within Designing Interventions are four 'action arenas' – health-promoting policy, urban planning, community involvement in health, and health system strengthening – which draw on real-world examples to provide a set of inspirational cases for building city-level action plans.<sup>321</sup>

Professor Napier said any city could join the Cities Changing Diabetes program so long as there was financial buy-in from the city (likely to be in the hundreds of thousands rather than millions). Larger rural cities were also welcome, given that they would provide a means of rural-urban comparison. A city such as Busselton, where population health data has been collected for decades, would be easily able to conduct a needs analysis.<sup>322</sup>

### Finding 15

Type 2 diabetes prevention is dependent on understanding the social, cultural and environmental factors, particular to a city and its communities, that underlie the development of the disease.

### Recommendation 15

The State Government and/or local government authorities use the tools offered by Cities Changing Diabetes to help understand vulnerable populations, or consider joining the program.

### Recommendation 16

The State Government consider funding a WA Local Government to participate in the Cities Changing Diabetes program.

319 Cities Changing Diabetes, *Bending the Curve on Urban Diabetes*, Novo Nordisk, 2017.

320 *ibid.*

321 Cities Changing Diabetes, *Urban diabetes: Understanding the challenges and opportunities*, Novo Nordisk, 2015.

322 Professor David Napier, Cities Changing Diabetes, *Briefing*, 29 January 2019.





## Chapter 4

### Adequacy of prevention and management programs and services

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*The increasing rates of diabetes are evidence that current initiatives to help prevent and manage diabetes through the promotion of healthy eating are insufficient.*

— Public Health Association of Australia

The previous two chapters have referred to programs and approaches that have been shown to assist people in the prevention and management of type 2 diabetes. This chapter explores issues of who has access to programs and to the relevant health professionals (e.g. GPs, endocrinologists, nurse practitioners, dietitians and diabetes educators).

Given undiagnosed and poorly managed diabetes can lead to serious complications and hospitalisation, early intervention is critical. It is also important to understand whether there are adequate services for groups that are more susceptible to type 2 diabetes – Aboriginal people, particular ethnic groups and migrants, people from socioeconomically disadvantaged communities and women who have had gestational diabetes. Further, people living in rural and regional areas are subject to a specific set of challenges, which will be examined.

From 2021, local governments will be required to have public health plans and will have greater responsibility for preventive health measures than in the past. This chapter will consider some of the ways in which they can have an impact on reducing the prevalence of type 2 diabetes in their communities. The increasing role that pharmacies are taking in dietary advice and overseeing meal replacement programs is considered, as well as whether it may be appropriate for them to perform type 2 diabetes screening tests.

In 2012 the Diabetes and Endocrine Health Network (part of the Department of Health) commissioned KPMG to conduct a review of WA's diabetes services to inform future policy and planning and the development of a state-wide diabetes services plan. The *WA Framework for Action on Diabetes Service Standards 2014* emerged from this and is still in use. There are also other state and national strategies that influence how diabetes is managed in WA. The status of these and the interplay between the various strategies and policies is considered in the next section.

#### State Government strategies have a broad focus

According to the Department of Health, the overarching framework for the prevention of chronic diseases such as type 2 diabetes is the *Western Australian Health Promotion Strategic Framework 2017-2021*.<sup>323</sup> The five-year plan aims to reduce the toll of preventable

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323 Ms Denise Sullivan, Department of Health, *Transcript of Evidence*, 28 November 2018, p. 4.

chronic disease and injury in the community by targeting the risk factors that are common to most preventable chronic conditions.<sup>324</sup>

In contrast to the earlier *WA Chronic Health Conditions Framework 2011-2016*, which guided planning and implementation of service delivery in relation to conditions such as type 2 diabetes, the current plan takes more of a helicopter view.

Further, the *Health Promotion Strategic Framework* objectives align with the *First Interim State Public Health Plan*. It is designed to complement the policies that address other aspects of health in WA, including models of care for individual chronic diseases.<sup>325</sup>

While the whole State no longer has an overarching chronic conditions strategy, there is a current strategy specifically for regional chronic health management – the *WA Country Health Service Chronic Conditions Prevention and Management Strategy 2015-2020*. There is also a national chronic conditions framework.

There are standards for diabetes care in WA, which are set out in the *WA Framework for Action on Diabetes and Diabetes Service Standards 2014*. This builds on the *WA Diabetes Model of Care* from 2008. The *Diabetes Model of Care* outlines the way different forms of diabetes should be managed in the health system, across the various stages of the disease (including prevention).

The 2014 service standards document, developed by the Diabetes and Endocrine Health Network, provides a set of quality standards that determine what someone with diabetes in WA should reasonably expect to receive in terms of services.

Health Network co-lead Professor Tim Davis said that the standards were evidence-based and most would still be contemporary. The intention was to use the standards to generate selective key performance indicators that could be used to benchmark services, but these have not yet been developed.<sup>326</sup> Professor Davis said there were efforts being made to do the same at the national level with the *Australian National Diabetes Strategy*, and ideally there would be consistency between the two.

The *Australian National Diabetes Strategy* was developed in consultation with jurisdictions through representation on the Australian Health Ministers' Advisory Council and the Council of Australian Governments (COAG) Health Council.<sup>327</sup> It outlines Australia's national response to diabetes and considers how existing limited health care resources can be better coordinated and targeted across all levels of government using the most effective and appropriate interventions. An implementation plan has also been developed to identify priority areas for government and to guide state and territory governments in planning and directing funding 'in a cost-effective and sustainable way to improve the health of all

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324 Department of Health, *Western Australian Health Promotion Strategic Framework 2017–2021*, 2017, p. 1.

325 *ibid.*, pp. 56-57.

326 Professor Tim Davis, Diabetes and Endocrine Health Network, *Transcript of Evidence*, 12 September 2018, p. 3.

327 Department of Health, *Australian National Diabetes Strategy, 2016–2020*, Australian Government, p. 1.

Australians—specifically, to prevent people from developing diabetes and/or minimising the risks of complications associated with diabetes’.<sup>328</sup>

Development of the implementation plan included a national stocktake of diabetes-related activities undertaken by all jurisdictions. The actions outlined were agreed by all jurisdictions as activities that could be developed, expanded or modified to produce tangible improvements in the prevention, early detection, management and care of all forms of diabetes. Given fiscal restrictions, it suggests jurisdictions prioritise prevention and minimising the risk of complications.

Actions aimed specifically at states and territories include:

- increasing the adoption of healthy lifestyles, particularly for children and women of reproductive age
- strengthening and continuing to develop partnerships between health professionals and major specialist diabetes centres
- ensuring access to high-risk foot clinics based on need
- providing culturally relevant diabetes related programs that meet the needs of local Aboriginal and Torres Strait Islander communities

The Diabetes and Endocrine Health Network is apparently working to support the implementation of the strategy at the State level. In late 2018, network representatives presented at a national forum that examined the progress of each jurisdiction against the national strategy. They advised that supportive policy initiatives in WA included:<sup>329</sup>

- *WA Aboriginal Health and Wellbeing Framework 2015–2030*
- *Western Australian Health Promotion Strategic Framework 2017–2021*
- *The Western Australia Framework for Action on Diabetes and Diabetes Service Standards 2014*
- NDSS – National Quality Standards for Self-Management
- WA Preventative Health Summit, which produced the Obesity Prevention domains for action in 2018
- *WACHS Chronic Conditions Prevention and Management Strategy 2015–2020*

Progress against the aims of the national strategy does not seem particularly advanced, but according to DoH Clinical Excellence Division assistant director general James Williamson, in comparison with other jurisdictions, WA was ‘quite well placed’.<sup>330</sup>

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328 Australian Health Ministers’ Advisory Council, *Diabetes in Australia: Focus on the future*, Australian Government, 2017, p. 3.

329 Dr Andrew Robertson, Department of Health, Letter, 17 December 2018, p. 39.

330 Dr James Williamson, Department of Health, *Transcript of Evidence*, 28 November 2018, p. 3.

DoH director of Chronic Disease Prevention Denise Sullivan explained that a number of statewide programs were funded through the Public Health division and, although they did not specifically address type 2 diabetes, the intent of the programs was to address factors that contribute to a range of chronic conditions such as type 2 diabetes.<sup>331</sup>

The lack of specific focus on type 2 diabetes extends to key performance indicator (KPI) reporting. As noted earlier, planned KPIs for the diabetes service standards have not been developed, and there is little else to indicate to the Parliament and the public how well the Department is performing in terms of management and prevention.

Despite type 2 diabetes affecting around five per cent of the population with undiagnosed diabetes and pre-diabetes constituting a further 10 per cent, type 2 diabetes is not on the list of annual reporting KPIs.

Neither type 2 diabetes nor obesity is listed as a condition to be reported on for the effectiveness KPI 'Prevention, health promotion and aged and continuing care services that help Western Australians to live healthy and safe lives'.<sup>332</sup>

The DoH says that it collects other KPI data related to diabetes, such as prevalence, deaths where diabetes was listed as the underlying cause, and hospital care.

Burden of disease data collected by the DoH shows that for males aged 45–64, diabetes was the sixth greatest cause of total disease burden (measured in DALY – disability adjusted life years), with coronary disease the leading cause. In men and women aged 65 and over, diabetes was the seventh greatest cause – ahead of bowel cancer in men and breast cancer in women.<sup>333</sup>

While conditions like breast cancer and melanoma are reported to Parliament as part of the 'Loss of life from premature death due to identifiable causes of preventable disease or injury' KPI, type 2 diabetes is excluded because people 'are not generally recorded as having died from type 2 diabetes', according to the DoH.

*It is often an associated cause, but the cause of death and the recording of the cause of death is primarily coronary disease or the like. That is why you are not getting that figure.*<sup>334</sup>

It is worth noting that the Australian Bureau of Statistics collects data which shows diabetes as a cause of death. In a report showing the change in leading causes of death over the past 50 years, diabetes moved from tenth in 1968 (when it accounted for 1.8% of deaths) to seventh in 2017 (when it accounted for 3% of deaths).<sup>335</sup>

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331 Ms Denise Sullivan, Department of Health, *Transcript of Evidence*, 28 November 2018, p. 4.

332 Department of Health, *Annual Report 2017–18*, Government of Western Australia, 2018.

333 Epidemiology Branch, Public Health Division Western Australia department of Health, *Leading causes of disease burden by age and gender in Western Australia, 2011*, Department of Health, Perth, 2017.

334 Dr Andrew Robertson, Department of Health, *Transcript of Evidence*, 28 November 2018, p. 17.

335 Australian Bureau of Statistics, *Changing Patterns of Mortality in Australia, 1968–2017*, cat. no. 3303.0.55.003, ABS, Canberra, 30 November 2018.

‘Curbing the rise in overweight and obesity’ and ‘Healthy eating’ are the first two priority areas of the *WA Health Promotion Strategic Framework 2017-2021*, and the DoH and the Minister for Health have acknowledged the importance of preventative measures and health promotion in managing the public’s health and the Department’s budget.<sup>336</sup>

Given this, and the fact that type 2 diabetes is a wholly preventable disease that affects one in 20 people, it seems reasonable to expect an annual reporting KPI that reflects its significance. While a ‘premature deaths’ measure is not appropriate, there are surely other measures that could provide an indication of progress to reduce the diabetes burden. For example, one of the annual reporting KPIs for measuring dental health is ‘Eligible patients on the oral waiting list who have received treatment during the year’. Perhaps a similar type of measure could be used for type 2 diabetes, such as the number of people with type 2 diabetes and pre-diabetes who have received dietetic advice or attended a self-management education program.

#### **Finding 16**

There is no State-based strategy specifically targeting type 2 diabetes and pre-diabetes, and there has been limited progress in implementing the aims of the national strategy.

#### **Finding 17**

Progress on improving the management and reducing the incidence of type 2 diabetes is not measured as part of the Department of Health’s annual reporting key performance indicators.

#### **Recommendation 17**

The Department of Health create a key performance indicator (or indicators), to be included in its annual report, which provides some measure of progress towards managing type 2 diabetes and reducing its prevalence.

### **Referral and access to specialists is problematic**

In addition to GPs and endocrinologists, dietitians are key to the care of people with type 2 diabetes, pre-diabetes and overweight or obesity. In the public system, a patient can be referred by a diabetes specialist (or any specialist) to the dietetic department. Assistant director general of the DoH clinical excellence division, Dr James Williamson, said that the public hospital system attended to a small subset of those with diabetes while the greater proportion were managed in primary care.<sup>337</sup>

In primary care, access to dietetic advice is by referral from a general practitioner to a private dietician. If the person already has diabetes, this could be covered by a Medicare Chronic Disease Management plan, which consists of five allied health consultations per

336 Department of Health, *WA Preventive Health Summit – Summary Report*, Government of Western Australia, March 2018, pp. 6-7; Jacob Kagi, ‘WA health sector review recommends more prevention spending’, *ABC News*, 27 February 2018.

337 Dr James Williamson, Department of Health, *Transcript of Evidence*, 28 November 2019, p. 10.

annum from any of 11 types of health professionals.<sup>338</sup> The appointments receive a Medicare rebate, but may attract a gap payment depending on the practitioner.

According to Diabetes WA health services operations manager Sophie McGough, the care plan is generally electronically generated without input from the patient, who is then told which allied health professionals they have been referred to.<sup>339</sup>

Endocrinologist Tim Davis's experience was that the appointments were mostly used for podiatry because diabetic patients worry about their feet.

*Not many of them would use them for dietitian access. Often the patients will see the dietitian early on in their diagnosis and think that that is it and that they should not go back and revisit it.*<sup>340</sup>

The Committee heard numerous times that a single appointment with a dietitian is not enough to effectively manage diabetes. Mrs McGough said that the complexity of the dietary change alone, even without considering the diabetes, could not be addressed in one visit.<sup>341</sup>

Diabetes WA also pointed out that the appointments could not be accessed by people with pre-diabetes, because they were only for people diagnosed with a chronic disease. Diabetes educator Patricia Marshall noted that group education, often used for diabetes self-management, was not covered by the scheme.<sup>342</sup>

The Dietitians Association of Australia (DAA) and Australian Diabetes Educators Association (ADEA) have previously lobbied the Federal Government<sup>343</sup> for greater recognition of the role of accredited practising dietitians and credentialed diabetes educators in Chronic Disease Management plans. They believe the number of appointments the scheme provides is 'vastly inadequate' to ensure effective ongoing support and education for self-management.

In a media release responding to the report tabled by the Select Committee into the Obesity Epidemic in Australia, the DAA welcomed the recommendation for obesity to be included as a medical condition under the Chronic Disease Management scheme, but said that the number of dietetic services able to be accessed under the scheme should be increased. The association also called for those with pre-diabetes and gestational diabetes to have access.<sup>344</sup>

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338 For example, a dietitian, diabetes educator, podiatrist, exercise physiologist or physiotherapist.

339 Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2019, p. 5.

340 Professor Tim Davis, Diabetes and Endocrine Health Network, *Transcript of Evidence*, 12 September 2019, p. 5.

341 Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2019, p. 5.

342 *ibid.*, p. 6.

343 Submission 35, Dietitians Association of Australia/Australian Diabetes Educators Association, Attachment 1, 'Expanding access to Accredited Practising Dietitians under Medicare Pre-Budget Submission 2013–2014'.

344 Dietitians Association of Australia, 'New national nutrition policy is the key for future health,' media release, 6 December 2018.

Clearly, what the Medicare scheme offers is insufficient and patients need to look elsewhere for support, particularly those who have not yet been diagnosed with type 2 diabetes.

Concerns were raised about the coordination of the support for type 2 and pre-diabetes, which is often left to GPs who are not necessarily aware of what is available.

As discussed in chapter two, the HealthPathways WA platform was developed to assist GPs provide guidance on where to find other services. Data provided by WA Primary Health Alliance (WAPHA) shows that the HealthPathways advice for Newly Diagnosed Type 2 Diabetes was viewed 438 times in 2017-18. This is not a great number of views, considering that around 10,000 people per year are diagnosed with type 2 diabetes in WA,<sup>345</sup> and there are around 3875 GPs in WA.<sup>346</sup>

The page for Diabetes Education, where GPs are advised to refer patients to a structured diabetes education program for self-management, was viewed 755 times. Under 'Lifestyle', GPs are advised to provide advice on weight management and to advise simple dietary changes. The Healthy Lifestyle Support page was viewed 317 times. Of course, while views are an indication of how much traffic the platform is registering they are not necessarily a measure of how many people are being referred by GPs to the programs and services.

Diabetes WA claims the platform focuses on clinical pathways rather than services pathways,<sup>347</sup> but WAPHA says this is because GPs designed the pathways to ensure that information was presented in a way that was logical to other GPs. Hence, it commences with the clinical information, with links to the specific referral information, based on clinical need.<sup>348</sup> Diabetes WA says that this leads to the service information for diabetics being fragmented.

*There might be a bit about diabetes education in the type 2 space, and in the chronic care management there is another bit, and in the healthy living bit there is another bit. We have tried to bring that altogether and have an interactive PDF that links into that pathway, so then that gives you all the information you need once you get there.*<sup>349</sup>

Diabetes WA said it had already had some success in helping to develop a simple, integrated pathway for the South-West. Developed by the South West Diabetes Regional Planning Group, led by WA Country Health Service (WACHS), WAPHA, GP Down South and Silver Chain, it maps services for the person with type 2 diabetes and at risk of diabetes from the primary through to the tertiary sector. The draft has not been implemented but Diabetes WA believes it has potential beyond the South West region.<sup>350</sup>

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345 Diabetes WA, *National Diabetes Week 2017 – It's About Time Information and statistics*, accessed 12 March 2019, from <<https://diabeteswa.com.au>>

346 This is the 2017–18 figure cited by Department of Health (Cwlth), *General Practice Statistics*, 2018, accessed 20 February 2019, <<http://www.health.gov.au>>

347 Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2018, p. 6.

348 Mrs Christine Kane, WA Primary Health Alliance, Letter, 14 December 2018.

349 Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2018, p. 6.

350 *ibid.*; Submission 9, Diabetes WA.

Diabetes and Endocrine Health Network co-lead Tim Davis said that ideally, public hospital diabetes units ‘should be truly multidisciplinary and deliver a package of care that takes care of everything’. It was much more difficult in primary care ‘where you have got a GP who is trying to coordinate things’.<sup>351</sup>

Mrs McGough said that Diabetes WA had consulted extensively with GPs to determine what they knew about the current system. She said while most GPs were aware that the National Diabetes Services Scheme (NDSS) provided diabetes supplies, such as insulin pump consumables and testing strips, many were not aware of the availability of structured diabetes education. Using NDSS funding, a Diabetes WA employee was attempting to increase awareness among the 400 GP practices across the State.<sup>352</sup>

WAPHA says it is in discussion with Diabetes WA to collaborate on a GP education event on type 2 diabetes management, and, as the HealthPathways will be reviewed in 2019, it will work with health service providers to encourage appropriate primary care management of type 2 diabetes, prior to referral for public hospital clinician input.<sup>353</sup>

Diabetes WA said it was committed to continuing the delivery of the DESMOND (Diabetes Education and Self-Management for the Ongoing and Newly Diagnosed) program in metropolitan, regional and remote areas using Commonwealth funding through the NDSS. However, it said there was under-utilisation of the DESMOND programs due to poor linkage between the secondary and tertiary systems, where people with type 2 diabetes were on lengthy waitlists and not referred to the DESMOND program.<sup>354</sup>

DESMOND sessions are typically co-facilitated by diabetes educators and dietitians, but a range of allied health professionals (such as exercise physiologists and pharmacists) are now also delivering DESMOND, extending the reach beyond the metropolitan area.<sup>355</sup> In 2017-18 there were 58 regional workshops, compared with 68 in the metropolitan area, and just over 1100 participants altogether. Considering nearly 10,000 people are diagnosed each year, this means just over 10 per cent of type 2 diabetics have accessed the workshops.

**Table 4.1: Number of people that participated in DESMOND workshops, 2017-18<sup>356</sup>**

DESMOND	Workshops	Participants
Metropolitan	68	555
Regional	58	435
Aboriginal program	15	122
TOTAL	141	1112

In 2017-18, Diabetes WA delivered 90 Smarts programs to 851 participants. These are free two- to three-hour group education workshops that provide education, practical skills and goal-setting opportunities.<sup>357</sup> The workshops include CarbSmart (for understanding

351 Professor Tim Davis, Diabetes and Endocrine Health Network, *Transcript of Evidence*, 12 September 2019, p. 5.

352 Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2018, p. 5.

353 Mrs Christine Kane, WA Primary Health Alliance, Letter, 14 December 2018, p. 3.

354 Submission 9, Diabetes WA.

355 Diabetes WA, *Annual Review 2017-18*, p. 20.

356 Figures sourced from Diabetes WA, *Annual Review 2017-18*.

357 Diabetes WA, *Annual Review 2017-18*, p. 22.



carbohydrates), MedSmart (understanding medication), ShopSmart (two-hour supermarket tour or classroom-based session), FootSmart (checking and caring for feet), MeterSmart (techniques for monitoring blood glucose).

In terms of prevention and healthy lifestyle-based programs, the *My Healthy Balance* free online program run by Diabetes WA registered 445 participants in 2017-18, while its Get on Track team-based online program recorded 238 independent challenges (instances of teams competing against one another). (By way of comparison, the UK-based global diabetes health website diabetes.co.uk attracts 2.2 million unique visitors per month, with 3 per cent of the traffic (66,000 visits) from Australia.)

**Table 4.2: Participation in Smart workshops, 2017-18**<sup>358</sup>

Smart workshop	Sessions	Participants	Support people
ShopSmart (supermarket tour)	14	98	28
ShopSmart (classroom)	21	165	41
CarbSmart	22	190	33
MedSmart	9	45	8
FootSmart	14	127	19
MeterSmart	10	85	12
<b>TOTAL</b>	<b>90</b>	<b>710</b>	<b>141</b>

The Food Sensations nutrition literacy program for adults (a partnership between the WA Health Department and FoodBank WA) had 887 metropolitan participants and 256 regional participants in 2017-18, although the participants are not necessarily type 2 diabetics.<sup>359</sup>

There are also various Healthy Lifestyle Programs which receive WA Department of Health funding and are outsourced to health service providers. For example, in Rockingham a program is provided by 360 Health + Community and receives support from CSBP, the chemical manufacturer and supplier.<sup>360</sup>

Healthy Lifestyle Programs aim to reduce the risk and improve the management of diabetes, coronary heart disease and chronic kidney disease. Since these programs are out-sourced across the metropolitan area the Committee is not aware of how many people have participated.

Diabetes WA claims that there is often no quality framework around the services, with outcomes not necessarily reported or measured. It says the effectiveness and impact of the interventions should be determined before reinvestment.<sup>361</sup> 'It tends to be: "We have done a program, we have ticked it off, and let's hope we all did something for diabetes."'<sup>362</sup>

<sup>358</sup> Diabetes WA, *Annual Review 2017-18*, p. 22.

<sup>359</sup> Dr Andrew Robertson, Department of Health, Letter, 17 December 2018, Attachment 4.

<sup>360</sup> 360 Health + Community, *Healthy Lifestyle Program (HLP)*, 2019, accessed 22 March 2019, <www.360.org.au >

<sup>361</sup> Submission 9, Diabetes WA.

<sup>362</sup> Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2018, p. 2.

The AMA (WA) also said a lot of short-term programs were not being adequately monitored and believed there should be a mechanism for evaluating programs, particularly from the perspective of patients.<sup>363</sup>

Mrs McGough sees the current health system as fragmented:

*I do not believe that there are not necessarily all the services available for people with diabetes. It is more about whether or not those services are interlinking together. In terms of systemic issues with the health system, that is a significant problem that we are seeing at the moment ... People are often funded in silos without encouraging integration to other services that may be providing exactly the same service and trying to achieve exactly the same outcome.*<sup>364</sup>

DoH director of Chronic Disease Prevention Denise Sullivan said that the DoH influences where funding is directed by way of service agreements with non-government organisations, and there was an emphasis on ensuring that programs reached low socioeconomic status groups and populations where there was a high level of overweight-obesity and inactivity.<sup>365</sup>

Dietitian and Curtin University adjunct research fellow Christina Pollard said that there was very little funding for public health and nutrition interventions in Australia, and there was a need to increase funding to develop and evaluate those sorts of programs. 'We had some in the past and they did well, but they have kind of stopped,' she said.<sup>366</sup>

Dr Pollard also said that the workforce that would ordinarily implement dietary guidelines had diminished.

*There are not the education programs and systems in place. The LiveLighter campaign has created a really high awareness of the risk and the consequences of being overweight. It does not contain ready, accessible dietary guidance for people about what types and amounts of food to eat at what stage in their life and how to actually embed that habitually, routinely.*<sup>367</sup>

Lack of access to dietitians and diabetes educators was raised by a number of contributors. The Diabetes Association of Australia (DAA) and Australian Diabetes Educators Association (ADEA) says that the current credentialed diabetes educator (CDE) workforce is able to serve around 57 per cent of diabetes patients in Australia. This excludes people with pre-diabetes. For low income earners, access to professionals was very limited, particularly for the at-risk group who could not access public health dietitians and could often not afford the cost of a private consultation.<sup>368</sup>

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363 Submission 25, Australian Medical Association (WA), p. 4.

364 Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2018, p. 2.

365 Ms Denise Sullivan, Department of Health, *Transcript of Evidence*, 28 November 2018, p. 5.

366 Dr Christina Pollard, Curtin University, *Transcript of Evidence*, 19 September 2018, p. 5.

367 *ibid.*, pp. 4-5.

368 Submission 35, Dietitians Association of Australia/Australian Diabetes Educators Association, p. 13; Submission 9, Diabetes WA.

Diabetes WA said that while it had the largest workforce of CDEs in the primary care setting, including nurse, dietitian, exercise physiologist and accredited pharmacist CDEs, the CDE workforce was still small.<sup>369</sup>

The AMA (WA) suggests that funding be provided for GP practices to have a dietitian/diabetes educator attached to the practice, increasing patient-centred care available in the community.<sup>370</sup>

The Committee heard evidence about a DoH trial in which an endocrinologist and diabetes nurse educator were placed in a primary care practice with GPs to direct the management of complex patients who would normally be referred to a hospital outpatient clinic. Waiting lists for outpatient clinics had fallen 'quite significantly', according to Professor Tim Davis, who oversaw the project in the South Metropolitan Health Service region. Glucose control, blood pressure and cholesterol levels had also improved.

Professor Davis said the initiative, called the Diabetes Complex Care Collaborative, was based on success in Brisbane in a low socioeconomic area where there had been long waiting lists at the hospital. The hospital had invested in the program and was able to reduce its waiting list and improve outcomes, with care delivered more appropriately near patients' homes.<sup>371</sup>

There are currently no plans to continue the program in WA, but Professor Davis said he planned to present the findings to the South Metropolitan Health Service board 'so they are aware of this Health Department initiative done in their region that has delivered what we think to be quite useful results'.<sup>372</sup>

### **Finding 18**

Access to dietitians and diabetes educators is limited, particularly for people who have not yet had a formal type 2 diabetes diagnosis and cannot access public health system services.

### **Finding 19**

The five allied health appointments available annually under Medicare Chronic Disease Management plans are insufficient to address the dietetic needs of people with type 2 diabetes.

### **Finding 20**

Type 2 diabetes management programs and community-based nutrition and healthy lifestyle programs are sometimes not accessed because general practitioners are not aware of what is available.

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369 Submission 9, Diabetes WA.

370 Submission 25, Australian Medical Association (WA), p. 4.

371 Professor Tim Davis, Diabetes and Endocrine Health Network, *Transcript of Evidence*, 12 September 2018, p. 3.

372 *ibid.*

### Finding 21

There are concerns that a lack of coordination of community-based healthy lifestyle programs could lead to duplication of services, and that there is insufficient evaluation of the programs being provided.

### Recommendation 18

The State Government lobby the Federal Government through the appropriate forum to increase the number of dietetic consultations offered under the Medicare Chronic Disease Management scheme.

### Recommendation 19

The Department of Health and the WA Primary Health Alliance increase measures to improve general practitioner awareness of nutrition and healthy lifestyle programs – many of which are State Government-funded.

### Recommendation 20

The Department of Health ensure that healthy lifestyle programs it funds are monitored and evaluated.

## Outcomes for type 2 diabetes patients are worse in regional areas

As noted in chapter one, reliable prevalence data for type 2 diabetes in Western Australia is difficult to find, and prevalence data for the regional areas is similarly elusive.

Across Australia, the Australian Institute of Health and Welfare<sup>373</sup> reports that the prevalence of type 2 diabetes is not significantly different between major cities (5%) and regional and remote areas (6%).<sup>374</sup> However, there are notable differences in regard to hospitalisation rates and diabetes deaths, with those in remote and very remote areas twice as likely to be hospitalised from the condition and 1.8 times more likely to die from it.<sup>375</sup>

While diabetes was the seventh leading cause of death in major cities, it was the second leading cause in very remote areas, with the age-standardised mortality rate almost four times as high as in major cities.<sup>376</sup> The WA Country Health Service's (WACHS) *Health Profile Summary 2017* provides a comparison of hospitalisation (morbidity) and mortality rates across the regions (see table 4.3).<sup>377</sup> People in the regional areas (served by WACHS) were

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373 Australian Institute of Health and Welfare, *Diabetes snapshot – How many Australians have diabetes? Type 2 diabetes*, AIHW, Canberra, 21 June 2018.

374 The *Diabetes in Western Australia: Prevalence and services in 2012* report by KPMG for the Department of Health presents prevalence rates for the state's health regions, but these are derived from the WA Health and Wellbeing Surveillance which did not report figures for the 16-44 age group. Data is also based on responses to the telephone survey question 'Has a doctor ever told you that you had diabetes?', which, in remote areas in particular, is not likely to capture the extent of type 2 diabetes.

375 Australian Institute of Health and Welfare, *Australia's Health 2018*, AIHW, Canberra, 2018, p. 120.

376 *ibid.*, p. 92.

377 Morbidity and mortality information is age standardised to account for differing age structures and compared to the State age standardised ratio (ASR), expressed as persons per 100,000 person years. For the purposes of comparison, a standardised rate ratio (SRR) is used, in which the State is represented by 1.0. Hence, an SRR of 2.0 is twice the State ASR.

1.3 times more likely to be hospitalised for diabetes and impaired glucose regulation than people across the whole state, rising to 2.8 in the Kimberley.<sup>378</sup>

The difference in mortality rates in regional areas is even more alarming, with people in WACHS areas 1.5 times more likely to die from diabetes than people in the rest of the state, and people in the Kimberley (with the highest ratio by far) 5.6 times more likely to die than people in the rest of the state and 6.2 times more likely than those in the metropolitan area.<sup>379</sup>

**Table 4.3: Diabetes and impaired glucose regulation hospitalisations and deaths, standardised rate ratio (SRR)**

Region	Hospitalisations	Deaths
Kimberley	2.8	5.6
Goldfields	1.7	1.9
Pilbara	1.5	2.8
Midwest	1.5	1.3
Wheatbelt	1.3	1.1
South West	1.0	1.2
Great Southern	0.9	1.2
Regional areas (serviced by WACHS)	1.3	1.5
Metropolitan areas	0.9	0.9

WACHS also compiles data for potentially preventable hospitalisations (PPH), which are considered to be an admission to hospital which may have been prevented by appropriate preventative health interventions and early disease management, usually delivered in primary care and community settings.<sup>380</sup>

Table 4.4 shows that diabetes complications are the leading cause of PPH in the Goldfields, and the third most common in the Pilbara, Midwest and Wheatbelt. In the South West and Great Southern it drops further down the list, a likely indication that primary care and allied health services for diabetics are more readily accessed in the south of the State.

**Table 4.4: Proportion of potentially preventable hospitalisations (PPH) attributed to diabetes complications, by region (15-64 years, 2011-2015)**

Region	% of all PPH	Position	Leading cause
Goldfields	12%	1 <sup>st</sup>	<i>n.a.</i>
Midwest	10%	3 <sup>rd</sup>	<i>cellulitis (16%)</i>
Wheatbelt	10%	3 <sup>rd</sup>	<i>dental conditions (13%)</i>
Pilbara	8%	3 <sup>rd</sup>	<i>cellulitis (19%)</i>
South West	8%	6 <sup>th</sup>	<i>dental conditions (15%)</i>
Kimberley	7%	4 <sup>th</sup>	<i>cellulitis (17%)</i>
Great Southern	7%	7 <sup>th</sup>	<i>dental conditions (14%)</i>

378 Campbell Anderson et al., *Health Profile Summary 2017*, WA Country Health Service Planning and Evaluation Team, March 2017, pp. 18-20.

379 *ibid.*, p. 26.

380 Department of Health and WA Primary Health Alliance, *Lessons of Location: Potentially Preventable Hospitalisation Hotspots in Western Australia 2017*, Health Networks, Department of Health, 2017, p. 3.

The WACHS regional profiles (a series of reports providing an overview of the health and service use of residents for each region) also report on avoidable mortality.

Avoidable mortality is defined as ‘deaths before the age of 75 years from conditions which are potentially avoidable given the present health system, available knowledge about social and economic policy impacts and health behaviours’.<sup>381</sup>

Table 4.5 shows that diabetes was the third leading cause of avoidable mortality in the Kimberley, where it accounted for 10% of avoidable deaths. It was the fourth leading cause in both the Pilbara and Goldfields, accounting for a slightly higher proportion in the Pilbara (7%) than the Goldfields (6%). Again, the southern part of the state had the lowest proportion of avoidable mortality caused by diabetes (4%).

**Table 4.5: Proportion of avoidable mortality attributed to diabetes complications, by region (0-74 years, 2011-2015\*)<sup>382</sup>**

Region	% of all deaths <75	Position	Leading cause
Kimberley	10	3rd	<i>Suicide and self-inflicted injuries (22%)</i>
Pilbara	7	4th	<i>Ischaemic heart disease (24%)</i>
Midwest	6	6th	<i>Ischaemic heart disease (20%)</i>
Goldfields	6	4th	<i>Ischaemic heart disease (25%)</i>
Wheatbelt	5	6th	<i>Ischaemic heart disease (21%)</i>
South West	4	10th	<i>Ischaemic heart disease (19%)</i>
Great Southern	4	8th	<i>Ischaemic heart disease (20%)</i>

\*Midwest and Great Southern year span 2006-2015

WACHS says that the use of screening and primary prevention and better treatment measures could potentially have avoided around half of avoidable deaths.

A report revealing the hotspots for potentially preventable hospitalisations in WA shows diabetes complications as the condition with the second highest number of hotspots in the state.

Of the 30 hotspots, two-thirds were in country WA.<sup>383</sup> A hotspot is an area that shows a rate of hospitalisation (specifically inpatient admission as opposed to Emergency Department attendance) of at least 1.5 times the state average. The report says that hotspots can indicate which areas are experiencing sustained inequity in terms of primary or community-based care, leading residents to access hospital care instead.<sup>384</sup>

Each area in the Kimberley is a hotspot for multiple conditions, including diabetes, and the multiple Goldfields hotspots also include diabetes. Three areas in the Midwest qualified as

381 WA Country Health Service, *Kimberley Health Profile 2018*, prepared by WACHS Planning and Evaluation Unit., 2018, p. 41.

382 Compiled using data from the Kimberley, Pilbara, Midwest, Goldfields, Wheatbelt, South West and Great Southern health profiles 2018, prepared by WACHS Planning and Evaluation Unit, 2018.

383 Department of Health and WA Primary Health Alliance, *Lessons of Location: Potentially Preventable Hospitalisation Hotspots in Western Australia 2017*, Health Networks, Department of Health, 2017, p. 7.

384 *ibid.*, p. 4.

diabetes complications hotspots, four in Wheatbelt–North, one in Wheatbelt–South (Narrogin) and one within the Albany area (Katanning).<sup>385</sup>

### Equity of access varies across the State

As borne out by the preventable hospitalisation and mortality figures, WACHS says in its submission that the burden of type 2 diabetes is magnified by greater health inequity in country WA. It says that ‘regionally based diabetes education, dietetic and/or healthy lifestyle services are limited by workforce shortages, funding inequities and distance, placing extensive travel demands on consumers and clinicians, to enable equitable access’.<sup>386</sup>

WACHS said that in rural and remote regions, 10 per cent of the population had to travel more than an hour to access a GP compared to fewer than two per cent of people in major cities. This led to higher levels of hospital attendances and could lead to people delaying seeking care until their condition was more acute.<sup>387</sup>

Rural Doctors Association of WA president Andrew Kirke illustrated how access could vary according to which part of the state someone lived in. He said that people near the regional centre of Bunbury were well catered for, with a lot of allied health services and other components of care which were mostly relatively cost free.

*If I compare that with Derby, where I lived for a year and where we were providing care to remote clinics outside of Derby, there might be a nursing post in that town or community, but it would be a two-hour drive or more to the town. Anything outside of what can be provided at that clinic and a weekly visit by the GP means that there is a huge investment cost for patients to get access to care. Immediately, there is less access, and then when you get to the centre of the town that might have those services, the actual provision of services is restricted as well.*<sup>388</sup>

Dr Kirke said that there was a need for public health funding to improve primary health care in the more remote areas, since small populations in those areas would not sustain private practices. He used the South West Aboriginal Medical Service as an example of how multiple services could be provided in one place, with ready access to diabetes educators and dietitians as well as the GP and podiatrist. Other models might not have services co-located but as part of an umbrella service.

*In the [South West] practice I work in we bring in a diabetes educator. We have had dietitians come in. We do have a podiatrist who is readily available, and we use WAPHA services if they are available.*<sup>389</sup>

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385 Department of Health and WA Primary Health Alliance, *Lessons of Location: Potentially Preventable Hospitalisation Hotspots in Western Australia 2017*, Health Networks, Department of Health, 2017, p. 32.

386 Submission 31, WA Country Health Service.

387 *ibid.*

388 Dr Andrew Kirke, Rural Doctors' Association of WA, *Transcript of Evidence*, 28 November 2018, p. 2.

389 *ibid.*, p. 7.

The ability to access a private accredited practising dietitian in rural and remote areas is significantly limited, and retaining experienced credentialed diabetes educators in these areas was challenging, according to Diabetes WA.<sup>390</sup> WACHS also said that attraction and retention of suitably qualified health staff to deliver prevention and intervention programs was problematic.

*To enable a greater focus on the use of diet and early intervention to manage type 2 diabetes in country WA an expanded and skilled place-based and virtual workforce is required across the inpatient, outpatient, community and primary health care settings.<sup>391</sup>*

Kimberley Community Legal Services noted that diabetes care was predominantly provided by generalist health providers in the Kimberley, with ongoing difficulties in recruiting and retaining health workers.<sup>392</sup>

### Recommendation 21

A focus on delivering primary care and allied health services to meet the needs of patients with (or at risk of) type 2 diabetes is required in remote regions, and should be a focus of any future funding agreements between the Commonwealth and State.

### Telehealth can be effective but is under-used

Telehealth provides the ‘virtual workforce’ WACHS refers to in the quote above. WACHS collaborates with the WA Primary Health Alliance (Country Primary Health Network) to establish connections with Integrated Chronic Disease Care programs,<sup>393</sup> which enable place-based self-management and referral to relevant virtual services. These include the Diabetes Telehealth Service.

The Diabetes Telehealth Service, a collaboration between Diabetes WA, WACHS and the WA Primary Health Alliance established in 2015, provides diabetes consumer and clinician education and clinical support across country WA. Endocrinology and gestational diabetes services were recently added. Nutrition and physical activity support and obesity management is a key deliverable of the service.

The service provides people with diabetes in regional and remote WA access to individual diabetes education, gestational diabetes mellitus specialised support, endocrinology services, professional upskilling for regional clinicians, a diabetes helpline and information and advice. Linking the service with the Diabetes Helpline had enabled the addition of a

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390 Submission 9, Diabetes WA.

391 Submission 31, WA Country Health Service.

392 Submission 36, Kimberley Community Legal Services, p. 4.

393 Integrated Chronic Disease Care aims to improve the health of vulnerable and or disadvantaged people in regional WA who have or who are at high risk of developing a chronic disease (including diabetes). The program facilitates access to, and the delivery of, a range of comprehensive allied health and care coordination services.



reactive ‘video call’ service for people who found attending a booked appointment challenging.<sup>394</sup>

Diabetes WA said Diabetes Telehealth had provided over 2463 occasions of service and saved one million kilometres of travel, which had earned it the WA Health Excellence Director General’s Award in 2017.<sup>395</sup>

Diabetes WA asserted that despite this there was no secure source of funding beyond June 2019. The annual cost of maintaining the Diabetes Telehealth Service is approximately \$450,000. Health services operations manager Sophie McGough proposed that the problem of funding, which had initially been provided by WACHS through the Southern Inland Health Initiative and subsequently by WACHS and WAPHA, could be resolved by establishing a joint service agreement between the three organisations (Diabetes WA, WACHS and WAPHA).<sup>396</sup>

According to Dr Kirke, telehealth can be used very successfully to access other primary health care services, but there can be problems not only with who funds the service but how and where it is established.

*A lot of this stuff could be done by GPs to people in remote communities, but there is no access for GPs to provide consultations via Telehealth and get remunerated for their time, so it is something that is done over and above their other work, their other clientele.*<sup>397</sup>

Several other contributors mentioned the need for telehealth to be a Medicare Benefits Schedule item,<sup>398</sup> and for telehealth services provided by dietitians and diabetes educators to be an option for the Medicare Chronic Disease Management scheme.<sup>399</sup>

WAPHA said that, given the difficulties in maintaining a reliable health workforce in rural and remotes areas, the Country Primary Health Network had been developing a range of telehealth services. These were anticipated to help people in terms of self-management strategies, preventing the exacerbation of symptoms, providing triage assessment, providing one-to-one and group support, linking with local social services, and assisting GPs to manage patients.<sup>400</sup>

## Finding 22

The potential of telehealth services to address poor access to health professionals in rural and regional areas has not been fully realised.

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394 Submission 9, Diabetes WA.

395 *ibid.*

396 Mrs Sophie McGough, Diabetes WA, Letter, 26 October 2018.

397 Dr Andrew Kirke, *Transcript of Evidence*, 28 November 2018, p. 6.

398 Submission 35, Dietitians Association of Australia/Australian Diabetes Educators Association, p. 7 (see also Dietitians Association of Australia, *New national nutrition policy is the key for future health*, media release, 6 December 2018); Dr Andrew Kirke, *Transcript of Evidence*, 28 November 2018, p. 7.

399 Professor Tim Davis, Diabetes and Endocrine Health Network, *Transcript of Evidence*, 12 September 2018, p. 5; Submission 35, Dietitians Association of Australia/Australian Diabetes Educators Association, pp. 3, 7; Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2018, p. 2.

400 Mrs Christine Kane, WA Primary Health Alliance, *Transcript of Evidence*, 21 November 2018, p. 5.

### **Management and prevention programs are spreading to other parts of the State**

WACHS says that in accordance with its *Chronic Conditions Prevention and Management Strategy 2015-2020*, it supports a number of programs which target type 2 diabetes, healthy eating and weight management.<sup>401</sup>

One of these is the Healthy Eating Activity and Lifestyle (HEAL™) program, which supports development of lifelong healthy eating and physical activity behaviours and is offered in the Great Southern, South West and Wheatbelt regions.

Two programs are also run in collaboration with Diabetes WA. One of these is DESMOND (Diabetes Education and Self-Management for Ongoing and Newly Diagnosed), also operating in the metropolitan region. (See chapter two for a more detailed description of the program.) In July 2017 Diabetes WA received a grant from the WA Department of Health to take DESMOND to regional and rural areas.

In the first part of 2018, the DESMOND regional program provided one-day six-hour workshops to 435 people in locations in the Kimberley, Peel, South West, Midwest, Great Southern, Goldfields and Wheatbelt.<sup>402</sup> Ten programs were also delivered in Tom Price, South Hedland, and Karratha as part of the Pilbara Diabetes Strategy. There were 58 workshops, which is a considerable achievement for a short period of time, but considering the thousands of people affected, with only 435 participants it is just scratching the surface in terms of need.

Diabetes WA acknowledged there were sometimes difficulties in attracting participants to DESMOND in the Pilbara, citing the 'lack of an established pathway for program referrals, consumer apathy and a lack of readiness to engage'.<sup>403</sup> Mrs McGough said:

*It is very difficult when there is an apathetic population who do not even realise that diabetes is on the agenda to try to then get them along to a program. But you can do it with good support.*<sup>404</sup>

Diabetes WA undertook the marketing and promotion of regional DESMOND sessions, easing the administrative burden on regional facilitators who are clinicians and do not have the time or resources to recruit participants and fund booklets.<sup>405</sup> Diabetes WA also trains the facilitators for WACHS and for organisations supported by WAPHA.

While DESMOND is aimed at people who already have diabetes, *Let's Prevent* (a modified version of the UK program discussed in chapter three) is aimed at helping people with lifestyle related chronic conditions to reduce their risk of developing type 2 diabetes, heart disease and stroke and associated obesity.

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401 Submission 31, WA Country Health Service

402 Diabetes WA, *Annual Review 2017–18*, p. 41

403 *ibid.*, p. 43.

404 Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2018, p. 4.

405 *ibid.*; Diabetes WA, *Annual Review 2017–18*, p. 43.

WACHS South West and Diabetes WA are collaborating to pilot the program in the South West, recruiting a minimum of 700 participants over a two-year period. The pilot will include a readiness assessment for roll out to other WA regional locations.<sup>406</sup>

*Let's Prevent* is a structured lifestyle education program aimed at increasing knowledge and promoting the adoption of healthy behaviours. It is one year long and consists of an initial six-hour group education session, a three-hour follow-up session after six months and three telephone support sessions at two, four and 12 months.

An evaluation of the UK program has found that participants who attended the initial and follow-up sessions were 62 per cent less likely to develop type 2 diabetes than people receiving standard care. Participants who completed all components of the program were 88 per cent less likely to develop type 2 diabetes. There was also significant improvement in participants' blood glucose levels, LDL cholesterol, psycho-social wellbeing, and sedentary time and activity levels.<sup>407</sup>

A range of programs for children (as part of the WACHS *Healthy Country Kids Strategy 2016-2019*) target modifiable risk factors such as poor diet or being above a healthy weight. These include:

- screening of all children at two and four years of age for healthy body weight by community child health services
- a partnership with FoodBank WA to deliver Food Sensations sessions and School Breakfast programs
- a pilot of the Better Health Program (face-to-face and online), which is an interactive healthy living program to support overweight and obese children (2-4 and 7-13 years) and their parents.

WACHS says that whilst it and other country health service providers were working to support healthy food options for children, including providing food gardens in local schools, more needed to be done in terms of system-based policy in these areas, at the national and state levels.<sup>408</sup>

Children in regional areas who are severely obese are also disadvantaged by not being able to access the Perth Children's Hospital (PCH) Healthy Weight Service, which supports families to attain and sustain healthy dietary practices and provides individualised dietary interventions.<sup>409</sup> The service is only available to patients in the metropolitan area or those able or willing to travel to PCH. Country children are also unable to access the patient

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<sup>406</sup> Diabetes WA, *Annual Review 2017-18*, p. 15.

<sup>407</sup> *ibid.*

<sup>408</sup> Submission 31, WA Country Health Service.

<sup>409</sup> Mr Mark Shah, Diabetes and Endocrine Health Network, *Transcript of Evidence*, 12 September 2018, p. 7; Submission 33, Perth Children's Hospital.

assisted travel scheme (PATs), since it does not apply to travel for stand-alone outpatient allied health appointments at PCH.<sup>410</sup>

### Groups that are more susceptible need targeted resources

As noted earlier in the report, some groups are more susceptible to developing type 2 diabetes than others. This section looks at the programs and services directed to those that are more at risk:

- *Indigenous Australians.* They are three times more likely to have type 2 diabetes than non-indigenous Australians. The outcomes are also poorer as diabetes death rates (as the underlying and/or associated cause) increase with remoteness and socioeconomic disadvantage which applies to many Aboriginal people.<sup>411</sup>
- *Ethnic groups and migrant populations.* It is well established that certain culturally and linguistically diverse (CALD) groups in Australia have a high prevalence of diabetes compared with the Australian-born population.<sup>412</sup> Although specific information about type 2 diabetes risks in CALD groups is scant in Western Australia, it can be assumed that those groups known to have a high prevalence of diabetes in their own country will have a high risk here, particularly if they have a genetic susceptibility to type 2 diabetes.<sup>413</sup>
- *Women who have had gestational diabetes mellitus (GDM).* Although gestational diabetes only occurs during pregnancy, there is a risk in developing GDM in any subsequent pregnancy. In the longer term, approximately 50% of women who have had gestational diabetes will develop type 2 diabetes within 10-20 years.<sup>414</sup>
- *Low socio-economic status groups.* The rate of diabetes is more than twice as high in the lowest socioeconomic group (8%) compared with the highest socioeconomic group (3%).<sup>415</sup> Australian adults with a greater level of education, higher income and living in areas of greater socioeconomic advantage are more likely to have a higher quality diet,<sup>416</sup> which makes them less susceptible to type 2 diabetes.

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410 Submission 33, Professor Elizabeth Davis, Department of Diabetes and Endocrinology Perth Children's Hospital.

411 Australian Institute of Health and Welfare, *Diabetes Snapshot*, 24 July 2018, accessed 20 March 2019, <<https://www.aihw.gov.au>>

412 Anne Marie Thow and Ann-Marie Waters, *Diabetes in culturally and linguistically diverse Australians*, AIWH Canberra, October 2005, p. 3.

413 New South Wales Health, *Preventing Type 2 Diabetes in Culturally and Linguistically Diverse Communities in NSW*, University of Sydney, 2007, p. 14.

414 Diabetes Australia, *Gestational Diabetes*, August 2013, accessed 20 March 2019, <<https://static.diabetesaustralia.com.au>>

415 Australian Institute of Health and Welfare, *Diabetes Snapshot*, 24 July 2018, accessed 20 March 2019, <<https://www.aihw.gov.au>>

416 K Backholer et al., 'The association between socio-economic position and diet quality in Australian adults', *Public Health Nutrition*, vol. 19, no. 3, 2016.

### **Aboriginal diabetes programs are not delivered by their own people**

Diabetes WA currently delivers the Aboriginal DESMOND program in collaboration with Aboriginal Medical Services and other health care providers across Western Australia. The program includes improved health literacy, altered food models, activities, risk profile and participant action plans. Aspects of the program delivered elsewhere in the State were modified following consultation with Aboriginal communities across WA.<sup>417</sup>

At the time of the Diabetes WA 2017-18 annual review, 15 Aboriginal DESMOND programs had been delivered, with 122 participants taking part. This program is the subject of a National Health and Medical Research Council research project with quantitative data being collected for evaluation. This involves both pre and post program data collection for variables such as HbA1c, cholesterol, blood pressure and smoking status.<sup>418</sup>

During 2017-18, Aboriginal DESMOND programs were delivered in the Perth metropolitan region, as well as the South West and Pilbara regions of WA:<sup>419</sup>

- Midland, Armadale, Maddington, Mirrabooka, Ashfield (East Metropolitan Health Service)
- Mandurah, Pinjarra (Nidjalla Waangan Mia)
- Bunbury (South West Aboriginal Medical Service)
- Karratha (Karratha Central Healthcare)
- Roebourne (Mawarnkarra Health Service)
- Newman (Puntukurnu Aboriginal Medical Service)
- South Hedland (Wangka Maya Pilbara Aboriginal Language Centre)
- Onslow (in conjunction with Heart Foundation and MHS)

Diabetes WA says that the ability to continue funding this program will be limited following the expiry of a self-management grant (provided by WA Health) in December 2018.<sup>420</sup> Its goal is have Aboriginal health workers external to Diabetes WA delivering the program in their own communities, but again there is limited funding for training.<sup>421</sup>

Gaps exist in the cultural adaption of Diabetes WA's *Let's Prevent* program for the Aboriginal and Torres Strait Islander peoples. Diabetes WA would like to see funding made available for the implementation of the *Let's Prevent* program as a consistent offering to people at risk

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417 Diabetes WA, *Annual Review 2017–18*, p. 24

418 *ibid.*

419 *ibid.*

420 Submission 9, Diabetes WA, p. 6-7.

421 *ibid.*, p. 7.

across Western Australia and adaptation of the training program for Aboriginal health practitioners.<sup>422</sup>

A similar call for community-based health workers to be involved in program delivery in Aboriginal communities was also made in a submission to the recent Federal government inquiry into childhood obesity.

The National Aboriginal Community Controlled Health Organisation (NACCHO) said community-based health workers, particularly in the Aboriginal Community Controlled Health Service sector, were best placed to deliver culturally appropriate care and ‘respond to the increasing rates of obesity and associated health concerns for Aboriginal and Torres Strait Islander people’.<sup>423</sup>

Professor Alex Brown, an Aboriginal medical doctor and world-recognised leader in Aboriginal health, says that in order to maximise engagement there is a need for culturally competent care provision:

*from a diabetes perspective, one of the critical elements around workforce development is credentialing Aboriginal people already in the healthcare system to understand and be able to respond better to diabetes because we think that is where the action is—around nurse educators, diabetic nurse educators or diabetic practitioners.*<sup>424</sup>

Based on the experience of other First Nations populations, a recent MJA article warns of a ‘stark trajectory ahead for Australia’, given the increasing development of cardiometabolic disease in young Indigenous Australians. Among First Nations peoples of Canada, 43 per cent of children born to mothers diagnosed with type 2 diabetes before 18 developed diabetes between the ages of 10 and 19, and a quarter by the age of seven. The authors urge ‘a radical rethink’ of the current approach, which they say is failing young Aboriginal people.

The article highlights the key times for intervention to prevent intergenerational metabolic disease. These are:

- before conception (optimising general health of women of child bearing age)
- during pregnancy (optimising health and diagnosing and managing any chronic disease early)
- after pregnancy (optimising health and improving rates of breastfeeding to reduce risk of obesity and diabetes in children of women with diabetes)

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422 Submission 9, Diabetes WA, p. 4.

423 NACCHO submission to the Federal Government Senate Inquiry into Obesity epidemic in Australia pp. 2-8.

424 Professor Alex Brown, South Australian Health and Medical Research Institute, *Transcript of Evidence*, 28 September 2018, p. 2-5.

- in early childhood (encouraging healthy feeding practices and physical activity, and preventing childhood obesity).<sup>425</sup>

### Recommendation 22

Type 2 diabetes management and prevention for Aboriginal communities should be community led and Aboriginal community health workers resourced to ensure the delivery of culturally appropriate care.

### Other services are delivered in a variety of ways

A number of prevention and intervention programs that target modifiable risk factors such as poor diet or being above a healthy weight are delivered by mainstream WACHS services and supplemented with partnerships. For example:<sup>426</sup>

- WACHS partners with other metropolitan-based health service providers, non-government organisations and Aboriginal Community Controlled Health Services (ACCHSs) in regional WA to provide healthy lifestyle and chronic conditions management programs under the Aboriginal Health Programs banner.
- WACHS also partners with ACCHSs in metropolitan and regional WA to deliver primary health care/healthy lifestyle programs under the Aboriginal Comprehensive Primary Health Care Program.
- ACHS Pilbara in partnership with EON Foundation delivers the Pilbara Healthy Eating and Lifestyles (HEAL) program – a holistic, sustainable and multi-faceted nutrition education program – to five remote Aboriginal communities across the Pilbara. HEAL was a finalist in the 2018 WA Health Excellence Awards.

The short-term nature of some programs is problematic in that they do not become widely recognised and established before funding is withdrawn and resources re-allocated. One such program was the Women and Children in the Kimberley (WICK) program, funded by Rural Health West and delivered in Broome by WACHS Kimberley from April to June 2017. WICK was delivered as a joint project between Boab Health's paediatric nutritionist and Kimberley Population Health Unit (KPHU) dietitians. The program was based on the Women and Children (WIC) program which has operated for many years in the United States.<sup>427</sup>

Food baskets were provided for attendees and included fruit, vegetables, tinned legumes and basic spices among other things. Participants were shown how to prepare and cook the items in the baskets. It was said that no program evaluation was done due to:

- the sporadic nature of attendance, which meant that it was difficult to obtain feedback in regard to the food provided

425 Angela Titmuss, Elizabeth A Davis, Alex Brown and Louise J Maple-Brown, 'Emerging diabetes and metabolic conditions among Aboriginal and Torres Strait Islander young people', *MJA*, vol. 210, no. 3, 2019, pp. 111-113.

426 Submission 31, WA Country Health Service, pp. 3-4.

427 Mr Jeffrey Moffet, Country Health Service, Letter, 8 February 2019.

- the attendees being mainly a group of mothers who had the capacity to engage in formal service delivery, who were not necessarily the ones who would have been benefitted most from the food baskets.<sup>428</sup>

As a consequence, WACHS was unable to comment on whether there was any improvement in overall nutrition outcomes for those involved.

Correspondence from WACHS says that the funding model was not considered appropriate for WACHS Kimberley as it was focused on paying a metropolitan-based professional to travel to the Kimberley rather than using existing services. To be of more benefit to Kimberley families, WACHS Kimberley believes flexibility in expending the grant monies and more notice to plan and deliver the program would be necessary.<sup>429</sup>

### **There are few services for people from ethnically diverse backgrounds**

The Australian Institute of Health and Welfare reports in *A Picture of Diabetes in Overseas-born Australians* that proportionally more overseas-born people than Australian-born report having diabetes.

Approximately 35 per cent of people who reported having diabetes in 2001 were born overseas despite the fact that only 28 per cent of the Australian population in 2001 were born overseas. The regions of birth with the highest diabetes prevalence, incidence of insulin-treated diabetes and diabetes-related hospitalisation and/or mortality rates were the South Pacific Islands, Southern Europe, Eastern Europe and Central Asia, the Middle East, North Africa and Southern Asia.<sup>430</sup>

Migration itself has an impact on health as people deal with the economic, physical and mental health demands of relocating to their new home in Australia. On arrival the food environment is often quite different in terms of the availability of familiar foods and a greater quantity of proceeds foods.

A paper titled 'Obesity in International Migration Populations' illustrates that while migrants may have a healthy weight on arrival, 10 to 15 years post migration they tend to overtake the overweight and obesity rates of the local population.<sup>431</sup>

The nature of ill-health for newly arrived Australians differs in their new home, where living conditions are significantly changed. For example, Victorian research revealed that some sub-Saharan African migrants believed that type 2 diabetes only affected wealthy urban dwellers and not poorer people, and was mainly a result of consuming too much sugar and not 'sweating it out'. This finding was consistent with other studies. There was also a

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428 Mr Jeffrey Moffet, Country Health Service, Letter, 8 February 2019.

429 *ibid.*

430 Australian Institute of Health and Welfare, *A picture of diabetes in overseas-born Australians*, 23 October 2003, p. 17.

431 Marie Murphy, Wendy Robertson and Oyinlola Oyeboode, *Obesity in International Migrant Populations*, *Current Obesity Reports*, vol. 6, no. 3, 2017, pp. 314-323.



commonly held belief that being overweight is an outward sign of prosperity and good health.<sup>432</sup>

Cities Changing Diabetes director David Napier explained how migrants who had experienced food deprivation may respond to later generations, such as their grandchildren, by over-nourishing.<sup>433</sup>

Ishar Multicultural Women's Health Centre, based in Perth, says that many of its clients have said they put on weight since arriving in Australia. Reasons for this included the availability of packaged food, the relatively cheap cost of high energy foods, and the inability to access familiar foods that are a significant part of the diet in their country of birth. Clients had a low level of health and food literacy and were unaware of the damage high energy foods can do to their health.<sup>434</sup>

While accessing a dietitian may be an option, many of Ishar's clients require interpreters and, as dietitians are not able to access the Australian Government's free translating and interpreting services, this is a cost prohibitive to most.<sup>435</sup>

In respect to the Chronic Disease Management plans that offer five allied health appointments each year, Ishar said that one or two appointments with a dietitian was insufficient for migrants; dietitians would need more time with the client to fully understand their diets and what influences the food they eat.<sup>436</sup>

One submitter to the Committee, Ms G.M. Jegasothy, said that her experiences with migrant groups showed that although they were able to cook, the produce was different and recipes that worked in their home country did not necessarily translate here. She suggested that a community-based program would work for these groups – 'a workshop and demonstration on how to work with the produce would help for successful transfer of recipe based skills and would be more economical for them'.<sup>437</sup>

Curtin University adjunct research fellow Dr Christina Pollard said WA did not have a dietetic workforce to cater for people from different backgrounds:

*There are really culturally specific dietary practices and the way people regard food, including with Aboriginal Australians as well, that are not being that well addressed simply because there are not the resources ...The answer is that there are very limited resources available, and a very high need. In some of those communities there are very high incidents of poor dietary practices, some of which has happened when they arrived in Australia.*<sup>438</sup>

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432 A Issaka et al., 'Sociocultural factors and perceptions associated with type 2 diabetes among sub-Saharan African migrants in Melbourne, Victoria', *Nutrition and Dietetics*, vol. 73, 2016, pp. 28-35.

433 Professor David Napier, Cities Changing Diabetes, *Briefing*, 29 January 2019.

434 Submission 7, Ishar Multicultural Women's Health Centre, p. 1.

435 *ibid.*, p. 2.

436 *ibid.*

437 Submission 8, Ms GM Jegasothy, p. 3.

438 Dr Christina Pollard, Curtin University, *Transcript of Evidence*, 19 September 2018, p. 7.

A program called Good Food for New Arrivals, which used to be run by the Association for Services to Torture and Trauma Survivors (ASeTTS), was no longer operating, she said. The program, funded by the Commonwealth, became Better Future for New Arrivals in 2013 and nutrition services were moved to another funded program. This would appear to be the free 10-week Families in Cultural Transition program, which devotes one workshop to food and nutrition. We are not aware of how many people completed the program.

Diabetes WA draws attention to the gap in services for the culturally and linguistically diverse (CALD) community, noting that it does not have a DESMOND product for CALD communities. Instead, the community education workshops that Diabetes WA delivers to the CALD community are based around the 'Feltman' tool – an interactive life-sized felt image of the human body that shows how diabetes works in the body.<sup>439</sup> It recognises that the CALD community requires a different approach and says the DESMOND program has the potential to be adapted for use in these communities. It calls for future funding for this to be developed.<sup>440</sup>

The number of people engaging with CALD programs and activities operated by Diabetes WA in the year 2017-18 (see Table 4.6) was 449 – a marked increase on the figure of 165 attendees reported in the 2016-17 review.

**Table 4.6: Number of people who attended Diabetes WA CALD programs and activities, 2017-18**

Multicultural Group/Organisation	Language	Attendees
Multicultural Services Centre – Manning	Indian	25
Multicultural Services Centre – Belmont	Burmese	22
Multicultural Services Centre – Westminster	Vietnamese	25
Multicultural Services Centre – North Perth	Italian	25
Multicultural Services Centre – North Perth	Macedonian, Serbian, Italian	24
Multicultural Services Centre – North Perth	Italian	30
Multicultural Services Centre – North Perth	Chinese, Vietnamese, Burmese	13
Multicultural Services Centre – North Perth	Italian	26
Australian Asian Association of WA	Mixed Asian	19
City of Stirling – Nollamara CALD group	Mix Sudan/Middle East	15
Association for Services to Torture and Trauma Survivors (ASeTTS)	Ethiopia, Syria, Sri Lanka, Syria, Iraq, Palestine	22
Association for Services to Torture and Trauma Survivors (ASeTTS)	Mixed Middle East (men only group)	25
Australian Asian Association of WA	Spanish	20
Australian Asian Association of WA	Sikh	35
Chung Wah Community & Aged Care	Cantonese/Mandarin	8
Chung Wah Community & Aged Care	Cantonese/Mandarin	50
Australian Asian Association of WA	Middle East	10
Centrecare Migrant Services	Middle East/Arabic	10
Gujarati Samaj Seniors	Indian	45
<b>TOTAL</b>		<b>449</b>

Source: Diabetes WA Annual Review 2017-18, p. 27.

In Leicester, a city in which only half of the population identifies as being of white ethnicity (compared to an average of 87 per cent across the rest of the UK), diabetes and healthy eating programs targeting ethnic minority groups are essential. Thirty two per cent of

<sup>439</sup> Mrs Sophie McGough, Diabetes WA, *Transcript of Evidence*, 10 October 2019, p. 15.

<sup>440</sup> Submission 9, Diabetes WA, pp. 7-8.

Leicester's residents are of South Asian ethnicity, and this is an ethnic group six times more likely to develop type 2 diabetes.<sup>441</sup>

Indeed, the diabetes prevalence rate in Leicester is 8.9 per cent compared with the national average of 6.4 per cent – possibly a consequence of its ethnically diverse population. The Leicester Diabetes Centre hosts the Centre for BME Health (where BME stands for black and minority ethnic), and is finding ways to engage what it describes as overlooked populations (rather than hard to reach) in health campaigns.<sup>442</sup>

Since Muslim and Hindu groups dominate, some of the ways to engage can be faith-based. However, religious festivals based around food were probably not the best time to lecture people about healthier eating and diabetes, according to one of the centre's researchers Carol Akroyd. She suggested trying to engage communities to talk about their diabetes risk during activities they were already doing and identified with.<sup>443</sup>

The centre's Safer Ramadan program involves training community champions, such as senior figures within mosques, to spread the word about how to manage diabetes during Ramadan. People were more likely to listen to a figure from their community who they respected, who could then refer them to a specially developed online e-learning program.

There are no such programs in WA. Diabetes Australia has a webpage about fasting for Muslims and advises anyone with diabetes considering fasting to discuss it with their doctor or diabetes educator. Cities that are part of the Cities Changing Diabetes program have also used the reach and influence of faith-based strategies to impart information about type 2 diabetes (for example, the Faith and Diabetes Initiative in Houston, Texas).<sup>444</sup>

### Finding 23

There is a need for more awareness and dietary education services targeting migrants and ethnic minorities at high risk of developing type 2 diabetes.

### Pre- and post-gestational diabetes programs are urgently required

The prevalence of gestational diabetes mellitus (GDM) is increasing worldwide. In the last 10 years, more than 200,000 women have developed gestational diabetes in Australia with predictions this will rise to more than 500,000 women in the next decade.<sup>445</sup> Statistics in Western Australia indicate that GDM has risen from 2.3 per cent of all pregnancies in 1993 to 7.4 per cent in 2013.<sup>446</sup>

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441 Diabetes UK, 'Leicester Joins Cities Changing Diabetes', *Diabetes Update Summer 2018*, p3; Leicester City Council, *Leicester: A city that doesn't do things by halves*, accessed 20 October 2018, <[https://www.ozempicare.ch/content/dam/cities-changing-diabetes/cities/Leicester/rule\\_halves\\_brochure\\_ccd\\_web.pdf](https://www.ozempicare.ch/content/dam/cities-changing-diabetes/cities/Leicester/rule_halves_brochure_ccd_web.pdf)>, p2.

442 Ms Carol Akroyd, Leicester Diabetes Centre, *Briefing*, 1 February 2019.

443 *ibid.*

444 Cities Changing Diabetes, *Bending the Curve on Urban Diabetes*, Novo Nordisk, 2017.

445 Diabetes Australia, *Gestational diabetes is an epidemic posing an immediate threat to thousands of pregnancies*, 14 November 2017, accessed 22 March 2019, <<https://www.diabetesaustralia.com.au>>

446 A Kirke et al., 'Diabetes screening in pregnancy failing women in rural Western Australia: An audit of oral glucose tolerance test completion rates', *Australian Journal of Rural Health*, no. 27, 2019, p. 64-69.

There is concern that the screening test to determine whether a pregnant woman has gestational diabetes is unmanageable for many women – particularly in regional areas and when women have other pre-school children – because it requires a two-hour wait between consuming a glucose solution and having a blood sample taken. Dr Andrew Kirke said the testing protocol was flawed and meant that around half of cases were not being detected.<sup>447</sup>

GDM is defined as ‘any degree of glucose intolerance with onset or first recognition during pregnancy’. It includes previously unrecognised type 2 diabetes and, rarely, type 1 diabetes arising in pregnancy. In most women, GDM is asymptomatic and diagnosed on routine testing at 24–28 weeks gestation. Many women have recognised risk factors for GDM:<sup>448</sup>

- previous GDM
- previously elevated blood glucose level
- south and southeast Asian, Aboriginal, Pacific Islander, Maori, Middle Eastern or non-Caucasian African ethnicity
- aged 40 or over
- family history of diabetes (first degree relative with diabetes or a sister with GDM)
- obesity, especially BMI >35
- previous macrosomia (baby with birth weight >4500g or >90th percentile)
- polycystic ovarian syndrome
- being on medications such as corticosteroids or antipsychotics

GDM is frequently cited as the most common complication of pregnancy and can be a serious risk to mother and baby during pregnancy. There is limited national data that monitors complications associated with gestational diabetes and pre-existing diabetes in pregnancy, but it is well known that untreated or poorly controlled gestational diabetes can result in increased perinatal mortality and maternal complications at birth.<sup>449</sup> These complications can include macrosomia, neonatal hypoglycaemia, respiratory distress, higher rates of preterm delivery and delivery by Caesarean.<sup>450</sup>

Apart from the more complicated cases of GDM, which may require medication, most cases are managed through diet and exercise.<sup>451</sup> However, while the diabetes in the mother usually goes away after the birth, gestational diabetes is an independent risk factor for type

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447 Dr Andrew Kirke, Rural Doctors’ Association of WA, *Transcript of Evidence*, 28 November 2019, pp. 8-9.

448 A Nankervis & J Con, Gestational diabetes mellitus: negotiating the confusion, August 2013, accessed 22 March 2019, <<https://www.racgp.org.au>>

449 Australian Institute of Health and Welfare, *Australia’s Health 2018*, Australian health series No. 16, Canberra, p. 120.

450 A Kirke et al., ‘Diabetes screening in pregnancy failing women in rural Western Australia: An audit of oral glucose tolerance test completion rates’, *Australian Journal of Rural Health*, no. 27, 2019, p. 64.

451 Dr Andrew Kirke, Rural Doctors’ Association of WA, *Transcript of Evidence*, 28 November 2019, p. 9.

2 diabetes, with one in two women estimated to develop type 2 diabetes later in life.<sup>452 453</sup> In addition, those who have had GDM during one pregnancy have a 30 to 50 per cent risk of developing GDM in another pregnancy.<sup>454</sup>

Infants of a gestational diabetes pregnancy carry a higher risk of obesity and diabetes in adult life, further perpetuating and potentially expanding the cycle of diabetes within families. Consequently, targeting women with gestational diabetes should be an important focus of preventative activities.

Diabetes Australia's advice for effective management of gestational diabetes is to monitor blood glucose levels, adopt a healthy eating pattern and engage in physical activity. These activities can be guided by 'your doctor, specialist, dietitian and credentialed diabetes educator.'<sup>455</sup> It also links people to the National Diabetes Services Scheme, which has a dedicated webpage for gestational diabetes with resources and information about the gestational diabetes register.<sup>456</sup>

In regional and remote areas of WA, women with GDM can access the Diabetes Telehealth for Country WA Service – a collaboration between Diabetes WA, WACHS and WA Primary Health Alliance.<sup>457</sup> The service offers access to credentialed diabetes educators via video conferencing, with care coordinated through health networks with local health professionals. In 2017–18, there were 127 telehealth appointments for women with GDM, which Diabetes WA says saved around 70,000 kilometres of travel. The telehealth service contacted local health professionals to offer consultations, which resulted in a 37 per cent rise in GDM referrals between January and June 2018.<sup>458</sup>

Another support service is that offered by Diabetes WA is the *Let's Prevent* education program, which now includes women who have had gestational diabetes.<sup>459</sup> We are unsure how many women who have had gestational diabetes have participated in *Let's Prevent*. In 2015–16 programs aimed at women post gestational diabetes (under the *Walking Away from Diabetes* banner) were piloted in the metropolitan area, but not funded beyond the pilot.

Leicester Diabetes Centre runs two short programs for women who have had gestational diabetes. Although they could have participated in the UK's national Diabetes Prevention Program, experience showed that new mothers were unlikely to do so. Given that the

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452 Submission 9, Diabetes WA, pp. 1-2.

453 Mr Mark Shah, Diabetes and Endocrine Health Network, *Transcript of Evidence*, 12 September 2018, p. 13.

454 SL O'Reilly, 'Prevention of Diabetes after Gestational Diabetes: Better Translation of Nutrition and Lifestyle Messages Needed', *Healthcare*, vol. 2, no. 4, 2014, pp. 468–491.

455 Diabetes Australia, *Managing gestational diabetes*, accessed 22 March 2019, <<https://www.diabetesaustralia.com.au/managing-gestational-diabetes>>

456 National Diabetes Services Scheme, *Your health matters: supporting women with gestational diabetes*, accessed 22 March 2019, <<http://gd.ndss.com.au/>>

457 Submission 9, Diabetes WA, p. 4; Submission 31, WA Country Health Service, p. 4.

458 Diabetes WA, *Annual Review 2017–18*, p. 40

459 Diabetes WA, *Let's Prevent*, accessed 22 March 2019, <<https://diabeteswa.com.au/lets-prevent/>>

women were enrolling in the programs after they had had their babies, an online program was developed that they could work through at home.

Given the serious consequences of GDM, DoH should investigate an online program in WA to ascertain whether that would ensure a higher level of participation.

While there appear to be adequate services for women once they have gestational diabetes, there needs to be more focus on preventing women from contracting the disease. As mentioned elsewhere, pre-pregnancy health and awareness programs make a difference, as well as a focus on health in the teenage years.

To reduce the number of women who have had gestational diabetes from developing type 2, more intensive follow-up is required.

### Finding 24

More and more women are developing gestational diabetes but there are few programs aimed at gestational diabetes prevention or prevention of type 2 diabetes following gestational diabetes.

### Recommendation 23

The Department of Health invest in programs aimed at reducing the prevalence of gestational diabetes and the number of women who develop type 2 diabetes as a result of having had gestational diabetes. Online programs should be investigated.

### Diabetes hotspots are not being targeted

The *Lessons of Location* report shows that the 30 hotspots for diabetes complications in Western Australia were associated with socioeconomic disadvantage, with all but one having a SEIFA<sup>460</sup> disadvantage decile of 6 and below (i.e. in the 60% of most disadvantaged areas in the state).<sup>461</sup> (See Appendix Nine for a full list of the hotspots.)

The measures that make up the SEIFA, including low income, unemployment, low educational attainment, lack of transport, overcrowded housing or homelessness and disability, have strong links to lower health status with increased risk factors to ill-health.<sup>462</sup>

That health follows a social gradient, rather than simply individual choice, was firmly established by the UK 2010 Marmot Review. The report confirmed the influence of the social determinants of health: the conditions in which people are born, grow, live, work and age lead to health inequalities. In highlighting these wider determinants of health, World

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460 Socio-Economic Indexes for Areas.

461 Department of Health and WA Primary Health Alliance, *Lessons of Location: Potentially Preventable Hospitalisation Hotspots in Western Australia 2017*, Health Networks, Department of Health, 2017, p. 9.

462 Submission 36, Kimberley Community Legal Services, Attachment: Rural Health West, Kimberley – population and health snapshot.

Medical Association Professor Sir Michael Marmot illustrated the inverse care law whereby those less well-off consistently gain less from health services.<sup>463</sup>

Based on the 2011 Census, all seven regions serviced by the WA Country Health Service (WACHS) have areas with a low SEIFA score and contain areas that are diabetes hotspots.<sup>464</sup> In the Kimberley, all local government areas except Broome had a SEIFA decile of 1, putting them in the top 10 per cent of disadvantaged communities in Australia.

Adding to the concern of the identifiable hotspots, WACHS argues that increasing prevalence of modifiable risk factors, such as the higher cost and often poor availability of fruits and vegetables, will contribute to the onset or exacerbation of type 2 diabetes and place an increasing and substantial burden on the WA health system.<sup>465</sup>

The Public Health Association of Australia asserts that poor environmental health infrastructure is a major barrier to food security. 'The elimination of overcrowding and the provision of appropriately designed, constructed and maintained houses are essential for the safe storage, preparation and consumption of food.'<sup>466</sup>

Issues of food security and provision of traditional foods were discussed in chapter three, and addressing some of the problems around fresh food availability and food transport may assist people in rural areas to eat more healthily. However there are other issues associated with socioeconomic disadvantage – not just confined to country areas – such as low health and nutrition literacy and lack of cooking skills.<sup>467</sup>

Ishar Multicultural Women's Health Centre noted that its clients (from some of the lowest SEIFA areas in Perth) have 'an extremely low level' of health literacy. Some had never been to school and were unable to read and consequently had difficulty reading packages and labels, storing food safely and preparing healthy lunch boxes for their children.<sup>468</sup>

The Committee is not aware of any programs that specifically target people with type 2 diabetes in the hotspots identified by the DoH and WAPHA. While there may be some overlap with programs targeting the Aboriginal population, a prevention program targeting all of the hotspots is essential. These are the people who are more likely to end up in the public hospital system, having not been diagnosed early and hence more likely to be suffering complications. Prevention programs should include food and nutrition literacy and cooking skills.

The importance of the approach of Cities Changing Diabetes is critical to addressing effective intervention programs for the hotspots as the needs analysis goes to the heart of the causal factors.

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463 Prof Sir Michael Marmot, *Fair Society, Healthy Lives: The Marmot Review*, University College London, 2010.

464 Submission 31, WA Country Health Service.

465 *ibid.*

466 Submission 17, Public Health Association of Australia, p. 8.

467 Submission 25, Australian Medical Association (WA), p. 8.

468 Submission 7, Ishar Multicultural Women's, Health Centre.

**Finding 25**

There are no programs specifically targeting type 2 diabetes prevention and management for people who are socioeconomically disadvantaged

**Recommendation 24**

The Department of Health invest in ways to engage people from socioeconomically disadvantaged communities in type 2 diabetes prevention programs, focusing on diet.

**Local government will play an increasing role in chronic disease prevention**

The State Government is currently introducing the new *Public Health Act 2016*, which repeals the *Health Act 1911*. The act has been progressively introduced in a five-stage process, with the first four stages implemented between July 2016 and September 2017. Stage five requires the State and each local government to develop a public health plan. Implementation is not expected to occur until at least 2021.

Local government plans must:

- identify the public health needs of the local government district
- include an examination of data relating to health status and health determinants in the local government district
- establish objectives and policy priorities for the promotion and protection of public health in the local government district
- describe the development and delivery of public health services in the local government district
- include a report on the local government's performance of its functions under the act

This is a major reform to public health in the State which will require local governments to understand the health priorities of their community and put in place programs to respond to them.

In *The Role of Local Government on Community Health and Wellbeing*, designed to assist local government officers and councillors with the health planning process, the WA Local Government Association (WALGA) says:

*The Public Health Act 2016 reflects the continuing role of Local Governments in health, including assistance with the prevention of chronic disease and mental health issues through community programs. As the closest tier of Government to the community, Local Governments are best placed to do community focused health planning and implementation.*<sup>469</sup>

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<sup>469</sup> WA Local Government Association, *The Role of Local Government in Community Health and Wellbeing*, July 2017, p. 4.



While implementation is three years away, WALGA says that ‘a significant number’ of local governments have already prepared Local Health Plans,<sup>470</sup> featuring prevention programs targeting healthy eating.<sup>471</sup> Local governments would be able to establish the rate of type 2 diabetes in their area from health and wellbeing profile data, including the *Lessons of Location* hotspots, but strategies would most likely be preventative and target obesity more broadly, according to WALGA.<sup>472</sup>

WALGA executive manager of People and Place Joanne Burges said that some local governments were working closely with the WA School Canteen Association (WASCA) to influence food options in recreational centres and sporting club kiosks that are under the ownership of local government. This is outlined in detail in *The Role of Local Government in Community Health and Wellbeing*, which suggests several strategies for implementation, including developing a healthy eating policy for venues or simply stating that healthy choices must be made available.<sup>473</sup>

WASCA suggests that community events hosted by local governments give preference to food vendors offering healthier choices and has developed the *Healthier Vendor Guide* to assist. It also suggests that catering facility upgrades in council owned buildings could replace deep fryers with items such as air fryers and non-stick grills.<sup>474</sup>

Ms Burges pondered whether there was a need for these types of measures to be captured in a local government regulatory form, to ensure compliance.<sup>475</sup>

She postulated that the State Government could not regulate the provision of unhealthy high energy food and drink in local government facilities because the *Local Government Act (1995)* does not contain a head of power that would permit a regulation of this type. According to WALGA, ‘the *Local Government Act* is predicated on the general powers of competence principle, that a Local Government may do anything that is not prohibited by law’.<sup>476</sup>

Given that the *Local Government Act 1995* is currently under review, there may be scope to assist local governments to ensure users of local government facilities exclude or restrict unhealthy food and beverages, through legislative changes.

Involvement from a DoH service can assist with compliance at recreation facilities, as demonstrated by South Lake Leisure Centre. Staff from the South Metropolitan Health Service worked with the centre and WASCA to improve the food outlet menu through WASCA’s *Fuel to Go* program. The centre increased green (healthy) choices by 14% and decreased red choices by 17%, so that the menu now offers 31% green, 21% amber and 48%

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470 Ms Joanne Burges, Executive Manager, People and Place, WALGA, *Transcript of Evidence*, 1 March 2019, p. 1.

471 The Cities of Wanneroo and Cockburn were mentioned.

472 Ms Joanne Burges, WALGA, *Transcript of Evidence*, 1 March 2019, p. 4.

473 WA Local Government Association, *The Role of Local Government in Community Health and Wellbeing*, July 2017, p. 26.

474 *ibid.*, pp. 26-27.

475 Ms Joanne Burges, WALGA, *Transcript of Evidence*, 1 March 2019, p. 5.

476 Ms Joanne Burges, WALGA, email, 19 March 2019 (closed).

red. South Metropolitan Health Service apparently offers ongoing support to help the venue maintain this status and improve further.<sup>477</sup>

While this initiative is commendable, it is nevertheless alarming that even after changes were made to the menu, red foods comprise almost half of what is on offer.

#### Recommendation 25

The Department of Health liaise with the Department of Local Government, Sport and Cultural Industries regarding changes to the *Local Government Act 1995*, which would empower local governments to enable restrictions on unhealthy food and beverages in their facilities and on advertising materials.

The first priority of the Shire of Northam's health plan is to address the prevalence of obesity and associated diseases and it has already implemented a healthy catering policy for all council functions and meetings.<sup>478</sup>

The Shire has also has undertaken to work with farmers to carry out projects which support the Local Health Plan, such as *Support self-reliance of residents to access and grow their own fresh produce*.

In the UK, public health has been in the hands of local government authorities since 2013. Newcastle City Council's public health plan has a focus on eating healthier food, by making it more attractive and accessible. Initiatives include transforming allotments to community gardens to encourage the broader community to grow food, pop-up gardens in the city and business sponsorship of gardens. The council has included food gardens in the planning application process for new developments.<sup>479</sup>

Newcastle received international attention for its Newcastle Can campaign, which challenged its residents to collectively lose 100,000 pounds of weight in a year. The campaign featured in a documentary by UK chef and broadcaster Hugh Fearnley-Whittingstall. While the city fell short of the target, there had been benefits beyond that aspiration.

Director of public health Eugene Milne said that the value of the documentary was that it demonstrated that a 'personality' urging people to lose weight and eat more healthily was pointless if people did not know what healthy meant and healthy food was not readily available.<sup>480</sup>

The social and environmental issues beyond the simple 'healthy eating' message became obvious, as residents found buying healthy food difficult in neighbourhoods where stores selling fresh produce had been replaced by take-away food outlets. Professor Milne said it

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477 WA Local Government Association, *The Role of Local Government in Community Health and Wellbeing*, July 2017, p. 38.

478 WA Local Government Association, *The Role of Local Government in Community Health and Wellbeing*, July 2017, p. 28.

479 Newcastle City Council, *Briefing*, 4 February 2019.

480 Professor Eugene Milne, Newcastle City Council, *Briefing*, 4 February 2019.

also showed that some of ‘the biggest correctable problems’ required national regulation – such as sugar content of foods, planning laws and product labelling.<sup>481</sup>

Policy and communication officer Harry Wearing said what happened on the TV show was only a small element of what was happening on the ground in between the visits of the TV crew.<sup>482</sup>

The inclusive message – of mobilising a whole city – had been used to Newcastle’s advantage, with a program targeting health in workplaces particularly successful.

Better Health at Work challenged most of the city’s largest employers and some smaller ones in a competitive program to lose weight. It signed up nearly 13,000 people compared to only 24 from Newcastle for a similar national program.

Newcastle also runs a school holiday meal program so that children who would normally attend school food programs do not go hungry and will eat healthily during the summer holiday period.

The city provides a health food and cooking program for people recovering from drug and alcohol addiction at the local library (where a café and gym are also located). A program to raise awareness of hidden sugars in food, Sugar Smart, is also one of the many health programs offered to the community.

Excitingly, Newcastle has leveraged the support of its famous and well-loved local football club, Newcastle United, to promote a healthy living lifestyle in schools.

## Finding 26

A whole community, multi-faceted effort coordinated by local government is required to address healthy eating, including the leveraging of well-respected high profile sporting organisations, businesses and local facilities to increase the health of local areas.

Type 2 diabetes is addressed by the national NHS Diabetes Prevention Program through top-down commissioning of providers. Professor Milne felt that the lack of local presence failed to build on community assets, such as leisure centres and existing social value within the city.

Leicester City Council has plans to implement a range of lifestyle services as a key stakeholder in the international Cities Changing Diabetes program, led by Leicester Diabetes Centre.

Phase one of the Cities Changing Diabetes project plan for tackling diabetes includes working with local eateries on healthy eating; working with schools on exercise, healthy eating and lifestyle education; exploring the role of community prevention champions; and working with pharmacists on screening and prevention.

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<sup>481</sup> *ibid.*

<sup>482</sup> Mr Harry Wearing, Newcastle City Council, *Briefing*, 4 February 2019.

As part of the program, Leicester will identify who is at risk and how to reduce the risk. Leicester intends to be an 'exemplar of a City that works together to improve urban diabetes [by] putting prevention at the forefront of the local services and planning agenda and promoting a culture of change in how people collaborate and work'.<sup>483</sup>

### Finding 27

Through participation in Cities Changing Diabetes, Leicester City Council has a defined framework in which to operate to address diabetes in its public health planning.

### Public health planning needs resourcing

WALGA says that while the local government sector recognises that the public health reforms mean it now has a much broader role than 'roads, rates and rubbish',<sup>484</sup> support for training, skill development and workforce capacity building to implement the reforms was lacking.

While WALGA was pleased that the DoH had funded 16 regional local government environmental health officers to complete health promotion training in 2018, there had been no funding, so far, to assist local governments in developing their local public health plans.

Local governments had requested that WALGA advocate for funding, support and resources from the State and Commonwealth governments to assist with the transition to their new obligations under the act.

WALGA says that as plans become compulsory, local governments will require an outcomes measurement framework to demonstrate how successful a project had been against how much it had cost, and a health and wellbeing indicator framework to establish a baseline of health and wellbeing.<sup>485</sup>

In the absence of a wellbeing indicator framework, disease prevalence data could be used but this did not provide data relating to wellbeing, community connection and place outcomes.

Considering the importance of data in determining local health needs, WALGA also saw value in the DoH's four Population Health Services becoming a hub for accurate localised data. Currently the four services ran independently of each other, resulting in local governments receiving different types of data and levels of support. Ideally, a centralised data service would also offer data comparisons with demographically similar local governments around Australia.

WALGA has proposed a partnership agreement with the State and Commonwealth governments to provide \$10 million per year to local governments to roll out preventive

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483 Leicester City Council, *Leicester: A city that doesn't do things by halves*, accessed 18 January 2019, <[www.ozempiccare.ch/content/dam/cities-changing-diabetes/cities/Leicester/rule\\_halves\\_brochure\\_ccd\\_web.pdf](http://www.ozempiccare.ch/content/dam/cities-changing-diabetes/cities/Leicester/rule_halves_brochure_ccd_web.pdf)>, p4.

484 Ms Joanne Burges, WALGA, *Transcript of Evidence*, 1 March 2019, p. 8

485 *ibid.*, pp. 6-7.

health, in recognition that local governments were best placed to provide grassroots community-based preventive health services.

The funding would provide local governments with the smallest populations with \$60,000 per year for programs and a 0.5 health and wellbeing officer, through to \$350,000 for the largest authorities for programs and three full-time officers. WALGA says the proposal was rejected.<sup>486</sup>

### Finding 28

The *Public Health Act 2016* is a major public health reform that will require local governments to understand the health priorities of their communities and put in place programs to respond to them. However, resources for local governments to implement the reforms are lacking, particularly for those that are smaller.

### Recommendation 26

The State Government provide more support to the local government sector to assist in the development of wellbeing indicators and an outcomes measurement framework.

### Recommendation 27

The State Government assist the local government sector to implement the requirements of the *Public Health Act 2016*.

### Recommendation 28

The Department of Health invest in the development of health and wellbeing officers that will be required to meet the workforce demands in the implementation of the public health plans.

## An expanded role for pharmacies?

Throughout the course of the inquiry the Committee heard that meal replacement shakes are an effective way to lose weight quickly and are commonly used as a component of a very low calorie diet (VLCD).<sup>487</sup> Because the chemical changes in the body resulting from the VLCD may not be understood by consumers, medical supervision is recommended.<sup>488</sup>

Meal replacement shakes are non-scheduled items and as such may be supplied over the counter without direct consultation with a pharmacist. Manufacturers offer varying degrees of support for the products, including access to websites and apps, and information and precautions outlined on the packaging.

486 Ms Joanne Burges, WALGA, email, 19 March 2019 (closed).

487 Submission 9, Diabetes WA, p. 8; Submission 35, Dietitians Association of Australia/Diabetes Educators Association of Australia, p. 9; Professor Jeffrey Hamdorf, Consultant Surgeon, *Transcript of Evidence*, 31 October 2018, p. 9.

488 National Health Service, UK, *Very Low Calorie Diets*, accessed 15 March 2018, <<https://www.nhs.uk/live-well/healthy-weight/very-low-calorie-diets/>>

The Committee sought information from various pharmacy bodies in respect to the advice and support available to consumers when such products are purchased over the counter from a pharmacy.

The Pharmaceutical Society of Australia (WA branch) says that a pharmacist is required by law to be onsite and to supervise all activities within the pharmacy. Queries related to over-the-counter weight loss products and specific advice about weight management or diet will often be directed to the pharmacist.<sup>489</sup>

The Western Australian branch of the Pharmacy Guild of Australia said that in addition to over-the-counter products, some pharmacies offer comprehensive programs, such as Impromy (designed in collaboration with the CSIRO).

In delivering that program, trained pharmacy staff provide support by measuring cholesterol, blood pressure and blood sugar levels through regular appointments.<sup>490</sup> Patient metrics are recorded at 0, 1, 3 and 6 months to demonstrate changes in body chemistry. The Guild says that initial consultations can be up to an hour – and the time expended on consultations is not remunerated.<sup>491</sup>

The WA director of the Pharmacy Guild of Australia, Mr Matthew Tweedie, said that there was potential for poor outcomes if consumers selected unregulated products often sold through supermarkets and pyramid style schemes, which offered no advice and support.

The majority of pharmacies now have an area within the pharmacy that is suitable for private consultations, a legacy of community pharmacy immunisation programs.<sup>492</sup> In addition, participation by community pharmacies in the 6CPA Medscheck and Diabetes Medscheck Program<sup>493</sup> requires a private consulting area that allows the patient and pharmacist to sit down together, beyond a privacy screen.<sup>494</sup>

The State Manager (WA) of the Pharmaceutical Society of Australia, Ms Stefanie Johnson, says that pharmacists are ideally placed to provide advice and counselling on a range of health issues.<sup>495</sup>

*In the current context of weight loss, the accessibility and rapport that pharmacists have with the community they serve place them in a unique position to initiate and engage in opportunistic weight management conversations. In addition, pharmacists see patients with chronic health*

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489 Ms Stephanie Johnson, Pharmaceutical Society of Australia, Letter, 30 November 2018.

490 Commonwealth Scientific and Industrial Research Organisation, *Impromy™ Health and Weight Management Program*, accessed 18 March 2019, <<https://www.csiro.au/en/Research/Health/CSIRO-diets/Impromy>>

491 Mr Matthew Tweedie, Pharmacy Guild of Australia (WA Branch), Letter, 26 November 2018.

492 *ibid.*

493 Medscheck and Diabetes Medscheck has been designed to provide an in-pharmacy medicine review between pharmacists and consumers to enhance quality use of medicines and reduce the number of adverse medicines events.

494 Australian Government Department of Health, *Medscheck and Diabetes Medscheck*, November 2017, accessed 18 March 2019, <<http://6cpa.com.au/medication-management-programs/medscheck-diabetes-medscheck/>>

495 Ms Stephanie Johnson, Pharmaceutical Society of Australia, Letter, 30 November 2018.

*conditions who require regular use of prescription medicines, e.g. diabetes and cardiovascular conditions. This further presents opportunity for pharmacists to facilitate weight management programs including regular monitoring of patients' progress.*<sup>496</sup>

Mr Tweedie expressed similar sentiments.<sup>497</sup> He believes community pharmacies can play a role in lowering the burden of illness and related costs associated with type 2 diabetes complications.

Community pharmacies were more accessible than GPs, seeing a patient on average 14–18 times per year, which was two to three times more than their GP. A tertiary trained workforce in excess of 2500 presented an opportunity to provide early detection and intervention services to people who may be at risk of developing type 2 diabetes.

The Guild recommended a dietary consulting service and a community pharmacy diabetes screening program as a way of providing savings to the State health budget.<sup>498</sup>

The Victorian Government has recently resourced its program of Superpharmacies to ensure after-hours access to pharmacist and nursing care, reflecting the consumer demand for accessible and affordable services from the neighbourhood chemist.

WA's *Framework for Action on Diabetes and Diabetes Service Standards 2014* specifies that 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, and those identified as high risk should be tested 'by an appropriately trained health care professional' annually.

The viability of using pharmacists to screen for diabetes was tested by the national Pharmacy Diabetes Screening Trial, which required 363 pharmacies to assess patients aged between 35 and 74 for both type 2 and pre-diabetes. The report of the Federal Government funded trial has not been made public. According to an article in *Australian Doctor*, the trial is expected to show that fewer than 140 cases were identified from the 14,100 screened (around one per cent).<sup>499</sup>

Some researchers say that there is evidence to support pharmacists having a greater role in the care of patients with type 2 diabetes, but the provision of such services remains limited and inconsistent.<sup>500</sup>

While earlier diagnosis as a result of better screening programs seems desirable, the WHO *Global Burden of Diabetes* report warns that adding new cases to a health-care system without additional investment could result in poorer average care. Screening programs will increase the number of clinically diagnosed cases of type 2 diabetes and as such will increase

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<sup>496</sup> *ibid.*

<sup>497</sup> Mr Matthew Tweedie, Pharmacy Guild of Australia (WA Branch), Letter, 26 November 2018.

<sup>498</sup> *ibid.*

<sup>499</sup> Antony Scholefield, 'Exclusive: pharmacists screened 14,100 customers to identify 136 diabetes cases', *Australian Doctor*, 8 November 2018.

<sup>500</sup> Jeffery David Hughes, Yosi Wibowo, Bruce Sunderland and Kreshnik Hoti, 'The role of the pharmacist in the management of type 2 diabetes: current insights and future directions', *Integrated Pharmacy Research and Practice*, vol. 6, 2017.

the health-care system workload. WHO advises that no screening system should be established without consideration of whether local health-care resources will be able to cope with the extra workload.<sup>501</sup>

### **Finding 29**

Pharmacies are well-placed to provide support to consumers purchasing liquid meal replacement products, but the level of support provided is variable.

### **Finding 30**

The cost-effectiveness of pharmacies providing screening for type 2 diabetes has not been determined.

### **Recommendation 29**

The Department of Health investigate how pharmacies can play a greater role in type 2 diabetes and pre-diabetes management, to assist people in the early stages of diagnosis.

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501 *ibid.*



## Chapter 5

### The cost of treating type 2 diabetes and the cost of interventions

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*Our hospitals are an important but costly resource that should not be used where prevention can be facilitated earlier by our medical system. – Dr Sanjeev Balakrishnan, Perth GP*

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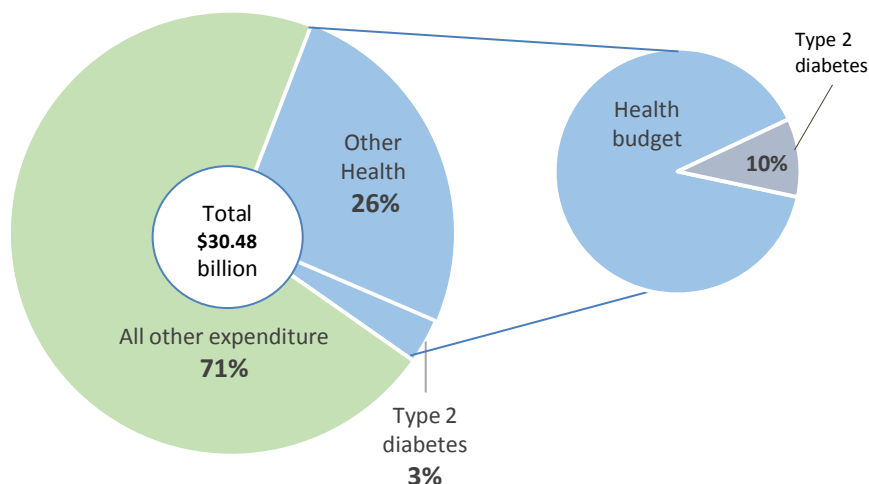
It is apparent that the government does not have a clear understanding of the cost impact of type 2 diabetes on the State budget. While the United Kingdom can confidently report that type 2 diabetes costs the National Health System (NHS) £10 billion (which represents 10 per cent of the NHS budget),<sup>502</sup> the cost to the WA health system has not been calculated.

Cost figures in the next section are estimates based on figures from a variety of sources, some of which are also estimates.

#### The cost to the State is estimated to be at least \$1 billion

While the direct cost of type 2 diabetes to the State is estimated at \$1 billion, it is estimated that it costs the State another \$1 billion in indirect costs (such as lost productivity and welfare payments). With \$8.8 billion allocated to the health budget in 2018–19,<sup>503</sup> the direct healthcare costs of type 2 diabetes represent around 10 per cent of the health budget.

**Figure 5.1: Proportion of 2018–19 State budget spent on health and type 2 diabetes**



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502 Diabetes UK, *Us, diabetes and a lot of facts and stats*, January 2019, p. 24.

503 Government of Western Australia, *WA State Budget 2018–19: Where the money comes from & where it goes*, accessed 3 April 2019, <<https://www.ourstatebudget.wa.gov.au/2018-19/overview.html>>

According to the *Western Australia Framework for Action on Diabetes and Diabetes Service Standards 2014*, the average annual healthcare cost per person with diabetes is \$4025 if there are no associated complications. However, this could rise to \$9645 in people with both micro- and macrovascular complications.<sup>504</sup>

An estimated 110,00 people have type 2 diabetes in Western Australia, based on registrations for the National Diabetes Service Scheme (see chapter one). Hence, a total cost of the disease would be somewhere between \$443 million (assuming no one has any complications) and \$965 million (if everyone had micro- and macrovascular complications).

Dr James Williamson, assistant director general of the DoH clinical excellence division, said that a diabetes patient with complications would probably cost around \$15,000 per annum<sup>505</sup> (around a 55% increase on the above \$9645 figure, which was based on 2012 national data).

The difficulty in establishing an accurate cost of type 2 diabetes to the WA health system is compounded by the lack of data on how many people have been treated for type 2 complications.

DoH data provided relate to hospital separations<sup>506</sup> where a diabetes complication was present during the patient's admission. Frustratingly, the DoH advises that due to Australian Coding Standards it is not possible to consistently identify whether patients were hospitalised because of the diabetes complications, or whether hospitalisation merely included treatment of the complications. Diabetes complications are coded regardless of whether treatment, increased clinical care or monitoring was provided for the complication.

*This means that ... "how many people have been treated", cannot be directly answered. Instead, the figures provided indicate the presence of these complications during hospitalisation.*<sup>507</sup>

In 2017–18 around 91,000 complications were coded in all WA public and private hospitals, compared with 78,000 in 2015–16. The number of separations with at least one diabetes complication was 50,000 in 2017–18, a rate of 56.4 per 1000 total separations (an increase from 51 in 2015–16).<sup>508</sup>

Another vague DoH estimate of the cost of type 2 diabetes to the WA health system was based on the 2011 figure of \$240 million for inpatient hospital and emergency department costs of overweight and obesity.

Dr Robertson, DoH acting assistant director general, said that an element of that would include type 2 diabetes, along with heart disease and a number of other conditions. It represented around 5.4 per cent of the State's hospital costs in 2011, and was expected to

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504 These figures are from Baker IDI Heart and Diabetes Institute, *Diabetes: the silent pandemic and its impact on Australia*, (eds), Jonathan Shaw and Stephanie Tanamas, 2012, p. 29.

505 Dr James Williamson, *Transcript of Evidence*, 28 November 2018, p. 14.

506 A technical term for the end of an episode of care.

507 Dr Andrew Robertson, Department of Health, Letter, 17 December 2018, p. 7.

508 *ibid.*, pp. 8-9.

more than double. 'That gives you a ballpark figure of the kind of cost, but it does not isolate it down to type 2 diabetes,' Dr Robertson said.<sup>509</sup>

The hospital costs of chronic disease as a whole is estimated to reach \$971 million in 2026 based on current trends, as outlined in the *Western Australian Health Promotion Strategic Framework 2017–2021*. There is no indication of the proportion that would be attributable to type 2 diabetes.<sup>510</sup>

Diabetes WA says that complications from type 2 diabetes alone currently consume 30 per cent of acute care hospital bed capacity in the metropolitan area and up to 80 per cent in some regional centres.<sup>511</sup> According to the National Hospital Cost Data Collection, WA expenditure for acute separations in public hospitals was \$2.78 billion in 2014–15.<sup>512</sup> Thirty per cent of the metropolitan capacity (which is roughly two-thirds of hospital beds, according to WA Public Hospital Activity data)<sup>513</sup> comes to \$551 million, and 80 per cent of regional capacity would be \$734 million. Together, this comes to \$1.28 billion. This may be an over-estimation since not all regional centres would be at the 80 per cent mark.

Applying the 30 per cent proportion to all separations produces a figure of \$835 million; the cost of diabetes complications to the public hospital system is likely somewhere between \$800 million and \$1.2 billion.

This is around 10 per cent of the State health budget spent on complications from a disease which can be prevented and managed in a way that can reduce not only health costs, but the personal toll on health.

When other factors are taken into consideration, the cost to the State is much higher. The number of people with type 2 in WA (110,000) is approximately 10 per cent of the national figure of 1.1 million. By extrapolation, the WA proportion of the national cost estimate of \$20 billion (which includes direct and indirect costs) would be \$2 billion.

This aligns with a 2015 report by Deloitte Access Economics that calculated that diabetes was costing Queensland \$1.1 billion in lost economic productivity. This was over and above the costs to the health system and the individual. It found that each case of type 2 diabetes cost approximately \$10,000 per year to treat. The largest direct care costs were attributable to hospital care.<sup>514</sup>

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509 Dr Andrew Robertson, *Transcript of Evidence*, 28 November 2018, p. 17.

510 Chronic Disease Prevention Directorate, *Western Australian Health Promotion Strategic Framework 2017–2021*, Department of Health, Western Australia, 2017.

511 Submission 9, Diabetes WA.

512 IHPA (Independent Hospital Pricing Authority), *National Hospital Cost Data Collection, Public Hospitals Cost Report, Round 19 (Financial year 2014–15)*, IHPA, Sydney, 2015, p. 14.

513 Department of Health, *WA Public Hospital Activity – hospital beds*, 19 March 2019, accessed 26 March 2019, <<http://www.health.wa.gov.au>>

514 Diabetes Queensland, *Diabetes costing Queensland economy \$1.1 billion in lost productivity – the time for action is now*, media release, 20 January 2015.

### Finding 31

It is estimated that type 2 diabetes costs the public health system around \$1 billion per year, which is approximately 10 per cent of the State health budget. The data provided were inadequate to validate this estimate, however various analyses reach a similar estimated proportion.

### Finding 32

Complications associated with type 2 diabetes place a significant burden on the tertiary care sector.

### Finding 33

Type 2 diabetes has as many, if not more, indirect costs to the economy in lost time and welfare payments as it does direct costs to the health system, in addition to the burden on the individual.

### Recommendation 30

The Department of Health must collect data that can provide an accurate indication of the cost of type 2 diabetes to the public health system.

### Recommendation 31

The Department of Treasury produce an economic model of the impact of type 2 diabetes on productivity and labour force participation in WA, with a view to savings that could be achieved through implementing prevention and management programs.

### Recommendation 32

The Department of Health implement prevention and management programs to reduce the incidence of type 2 diabetes complications, reducing the cost to the WA Health system.

## Type 2 diabetes costs the nation an estimated \$20 billion per year

Determining the cost of type diabetes to the community is complex, and various estimates take into account different aspects. For example, an often quoted figure of the cost for all Australians with type 2 diabetes is \$6 billion per year. This includes direct healthcare costs, the cost of carers, Commonwealth government subsidies and indirect costs such as lost wages.<sup>515</sup> Another figure often cited is \$14.6 billion, which was derived from a 2005 survey which calculated the cost for Australians aged over 30 at \$10.6 billion (\$4.4 billion in direct costs and \$6.2 billion in government subsidies). That was converted to an estimated \$14.6 billion in 2010 dollars (when the study was being completed)<sup>516</sup> and has since been updated to \$20.2 billion in 2018 dollars.<sup>517</sup>

A study to assess the economic impact of diabetes through lost labour force participation on individuals and government found that the median annual income of people who retired

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515 Baker IDI Heart and Diabetes Institute, *Diabetes: the silent pandemic and its impact on Australia*, (eds), Jonathan Shaw and Stephanie Tanamas, 2012, p. 4.

516 CM Lee et al., 'The cost of diabetes in adults in Australia', *Diabetes Research and Clinical Practice*, vol. 99, no. 3, 2013, pp. 385-390.

517 Hannah Carter, 'Economic consequences of diabetes: More than just a health system issue', in *Australian Diabetes Educators Association (ADEA) – Qld Branch Conference*, 20–21 April 2018, Bond University, Gold Coast, QLD. (Unpublished).

early because of their diabetes was almost five times less than those employed full-time without a chronic health condition.

*At the national level, there was a loss of \$384 million in individual earnings by those with diabetes, an extra \$4 million spent in government welfare payments, a loss of \$56 million in taxation revenue, and a loss of \$1324 million in GDP in 2010: all attributable to diabetes through its impact on labour force participation.*<sup>518</sup>

The report highlighted that individuals bear the cost of lost income in addition to the burden of the disease.

The same authors, using a microsimulation model, forecast the economic costs of diabetes among Australians aged between 45 and 64 years over 15 years (2015–2030). The model estimated the indirect costs of diabetes (lost productive life years, extra welfare payments, lost taxation revenue and lost GDP) from both the individual and government perspectives.<sup>519</sup>

The study projected:

- a loss of \$2.9 billion in GDP from lost productive life years due to diabetes by 2030
- that the 18,100 people out of the labour force due to diabetes in 2015 would increase to 21,400 in 2030
- a loss of \$467 million in annual income in 2015, increasing by 73 per cent to \$807 million in 2030
- annual welfare payments would increase from \$311 million in 2015 to \$350 million in 2030
- lost annual taxation revenue would increase from \$102 million in 2015 to \$166 million in 2030.<sup>520</sup>

The study clearly showed that indirect costs were greater than direct healthcare costs and it was noted that several government organisations (for example, the Fit for Work Europe Coalition) have made a case for including labour productivity as a relevant outcome measure in health investment decisions.<sup>521</sup>

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518 DJ Schofield, MM Cunich, RN Shrestha et al., 'The economic impact of diabetes through lost labour force participation on individuals and government: evidence from a microsimulation model', *BMC Public Health*, vol. 14, no. 1, 2014.

519 DJ Schofield, RN Shrestha, MM Cunich et al., 'The costs of diabetes among Australians aged 45–64 years from 2015 to 2030: projections of lost productive life years (PLYs), lost personal income, lost taxation revenue, extra welfare payments and lost gross domestic product from Health&WealthMOD2030', *BMJ Open*, 2017, no. 7, p. 2.

520 *ibid.*, pp. 1–2.

521 *ibid.*, p. 9.

## Cost-effectiveness of management and prevention

Schofield et al. (2017) report an 86 per cent increase in direct healthcare costs of diabetes between 2000–01 and 2008–09, with most costs spent on hospitals and medications.<sup>522</sup>

As diabetes public health costs are largely attributable to long-term secondary complications, the most effective cost savings are therefore in preventing complications, as well as the greatest benefits for the patients.

Over 11 million prescriptions for diabetes medicines were dispensed nationally under the Pharmaceutical Benefits Scheme and Repatriation Pharmaceutical Benefits Scheme nationally in 2015. Metformin, to treat diabetes, was the ninth most commonly dispensed medicine to the Australian community in 2015. In 2016, of the 27,700 people who began using insulin to treat their diabetes, 16,343 (59%) were type 2 diabetics.<sup>523</sup>

The apparent over-reliance on prescription medication as the preferred treatment has been criticised, particularly by those who have had success with other treatment options. The priority of any treatment regime should be to exhaust treatment options involving diet that can reduce or eliminate the need for medication whilst maintaining a normal blood glucose level – not simply for the benefit of the patient but in saving scarce public health dollars.

### Dietary measures

Last month, The Lancet published the one-year cost-effectiveness study of the UK's DiRECT<sup>524</sup>/Counterweight-Plus trial.<sup>525</sup> The trial, discussed in chapter two, is a primary-care intervention whereby 149 type 2 diabetes patients were enrolled by their GP in a total diet replacement program (Counterweight-Plus<sup>526</sup>), overseen by a dietitian or practice nurse. While the trial has been underway for two years, the cost-effectiveness study is based on the one-year results.

As previously outlined, in the DiRECT trial 46 per cent of the intervention participants achieved remission compared with just 4 per cent of those who received usual care.

Fixed set-up costs of £48 (annualised over five years, the length of the trial) were to train the practice nurses/dietitians, practitioners' attendance time, training materials, and program support, such as online access to a medical advisor. Resources for participants included

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522 DJ Schofield, RN Shrestha, MM Cunich et al., 'The costs of diabetes among Australians aged 45–64 years from 2015 to 2030: projections of lost productive life years (PLYs), lost personal income, lost taxation revenue, extra welfare payments and lost gross domestic product from Health&WealthMOD2030', *BMJ Open*, 2017, no. 7.

523 Australian Institute of Health and Welfare 2018. Australia's health 2018. Australia's health series no. 16. AUS 221. Canberra: AIHW, p. 2.

524 Diabetes Remission Clinical Trial

525 Yiqiao Xin et al., 'Within-trial cost and 1-year cost-effectiveness of the DiRECT/Counterweight-Plus weight-management programme to achieve remission of type 2 diabetes', *The Lancet*, vol. 7, March 2019.

526 Counterweight is a weight management company set up in 2011 as a spin-off of the weight loss programs developed by the Robert Gordon University. Counterweight-Plus is the intervention used in the DiRECT clinical trial. It aims at 15% weight loss or more for individuals with a higher BMI and involves a total diet replacement phase, followed by stepped, structured food re-introduction and then a weight maintenance phase. Information accessed on 26 March 2019, <[www.counterweight.org](http://www.counterweight.org)>

formula diet sachets, review appointments with a practitioner, and supporting workbooks. The total cost per intervention participant was £1223.

Costs of primary and secondary care contact, outpatient visits and hospital admissions were calculated for the intervention group and the 149 participants in the control group (who received the standard care for type 2 diabetes). Costs were similar for both groups (£656 for intervention and £677 for control participants). However, there was a significant cost difference in medications (anti-diabetes and anti-hypertensive drugs), with the total costs of medications for the intervention group £34 per participant compared to £168 per control group participant.

Total cost of routine resource use was £691 for intervention participants and £846 for control participants. However, once the cost of intervention delivery is taken into account, the cost for the intervention group is higher than the control group – £1913 compared to £846. It cost £1067 more for the intervention patients than for those participating in the trial and receiving medication as necessary.

The authors suggest that the cost of the intervention could be reduced by restricting the number of sachets issued and/or by negotiating a lower unit cost for large contracts. Being of only one year's duration, the study could not account for future reduced health-care demands resulting from the weight loss and diabetes remission intervention. Ongoing follow-up would be needed to model long-term health gains, resource savings, and quality of life.

On the basis of the success of DiRECT, the UK NHS has introduced a subsidy program for meal replacement sachets. Currently in Australia individuals who undertake very low calorie diets, such as the CSIRO's Impromy, have to individually bear the cost of liquid meal replacements, despite the potential savings for the public health system from putting their type 2 diabetes into remission.

The State Government should monitor the outcome of the NHS trial and give serious consideration to working with the Commonwealth to establish a similar subsidy for meal replacements, particularly given the demographic profile of type 2 making self-funded action prohibitive.

The low carbohydrate approach has advantages over a low calorie diet using liquid meal replacements in that there are no major resource costs. GPs or healthcare professionals can provide patients with guidance through brochures or information sheets which show teaspoon of sugar equivalents (similar to that developed by UK GP David Unwin) and explain how glycaemic load works. The bulk of the delivery cost is most likely to be practitioner visits, since adherence to the diet requires regular professional support and health monitoring would be required.

GP and dietitian visits are not a cost to the State, but the State could benefit from diabetes remissions resulting from a low carbohydrate diet approach.

It would be in the State Government's interests to encourage diabetes education programs for GPs (perhaps based on the CSIRO's low carbohydrate program) to promote the low carbohydrate diet to people with the type 2 and pre-diabetes.

While some have called for dietitian consultations to be more readily available (through the Medicare rebated chronic disease management scheme, for example), this would not necessarily result in promotion of the low carbohydrate approach to patients. Many dietitians and organisations such as Diabetes Australia argue that the long-term effects of the low carbohydrate diet have not been established, despite success in putting diabetes into remission.

A recent media article claimed that the low carb diet lacks fibre, while a high fibre diet is believed to reduce the risk of conditions such as heart disease, stroke and high blood pressure.<sup>527</sup> The author of the fibre study, Professor Jim Mann from the University of Otago, did acknowledge that some low carb diets, such as the one developed by the CSIRO, contained enough fibre. He noted, however, that 'the participants in that [CSIRO] research saw a dietitian for a month every year, which is difficult for the average person to do'. This reinforces the message that people following a weight loss diet need to be supported with regular, supportive and well-informed GP, dietitian or psychological counselling appointments.

It is interesting to note that one of the reasons diabetes.co.uk was established and has been so successful as an online advice for type 2 diabetes sufferers is the lack of support and relevant advice so many patients felt they had received from their medical practitioners.

Indeed, one of the reasons UK GP Dr Unwin was able to achieve such impressive savings on diabetes prescriptions in his practice was his level of commitment to his patients, and the ready and affordable access provided by the UK's public health system. Dr Unwin's commitment to the low carb diet as a treatment for patients meant his practice spent around \$70,000 less per year on diabetes drugs than the local average in 2016.

In WA, diabetes medication savings would be a saving for the individual and for the Commonwealth, which administers the Pharmaceutical Benefits Scheme. Savings for the State are likely to be realised by fewer instances of hospitalisation.

### Finding 34

While the cost-effectiveness of treating type 2 diabetes with a subsidised low calorie diet using meal replacements is yet to be finalised, initial success in the treatment has led the UK's National Health Service to trial meal replacements as part of its Diabetes Prevention Programme.

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527 James Bullen, 'Fibre has even bigger benefits for us than we thought, and we're not getting enough of it', *ABC News – Health Report* (web-based), 13 March 2019, accessed 27 March 2019, <<https://www.abc.net.au/news/health/>>



**Finding 35**

Costs associated with following a low carbohydrate diet as a way of managing blood glucose levels is mostly associated with practitioner supervision of the patient.

**Recommendation 33**

The Department of Health investigate how the low carbohydrate program developed by the CSIRO can be made readily available to WA doctors as part of the treatment guidelines for people with pre-diabetes and type 2 diabetes.

**Recommendation 34**

The Department of Health monitor the UK National Health Service trial of subsidised meal replacements as part of type 2 diabetes prevention, and report back to the Parliament on how the State Government can facilitate a similar program, either through the Commonwealth or through local government public health plans.

**Bariatric surgery**

Bariatric surgery's effectiveness in putting type 2 diabetes into remission has been proven.<sup>528</sup> Diabetes Australia says that 'gastric banding and bypass surgery are cost effective treatments for obesity and diabetes, with the potential to reduce future health expenditure by preventing disease, disability and death.'<sup>529</sup> However, the wait time for bariatric surgery in the public health system is five years.

A 2015 PwC report into cost effectiveness of various weight loss interventions in Australia found that bariatric surgery is the most effective intervention for severe obesity. However, with upfront costs of \$20,000 to \$25,000, it says it is also the most costly.<sup>530</sup>

The PwC report focuses on the net present value of costs saved versus dollars invested in a 10-year period. Lifetime benefits, such as quality adjusted life years, are not included.<sup>531</sup> The benefit-cost ratio model for bariatric surgery for obesity generally has found it was not cost-effective at the 10-year point, reaching the break-even point at 13 years.<sup>532</sup>

In contrast, a Sydney-based study reported that the cost of surgery is recovered after about a year.<sup>533</sup> The 65 participants in the study had a BMI of 35 or more and comorbid conditions, including type 2 diabetes. By 18 months, almost half with type 2 diabetes had resolved their condition. The study, published in 2014, calculated the direct operative costs of performing the surgery in the public sector to be \$7000 to \$9000. Perioperative costs (including two years of postsurgical visits) were estimated at \$2000, taking the total cost to between \$9000 and \$11,000 per person. The study quoted a 2005 figure for the annual cost of managing an

528 Studies have shown that after bariatric surgery, blood glucose may return to normal without medication in up to three out of four people with type 2 diabetes. Others are able to reduce their diabetes medication. Diabetes Australia, *Position Statement: Weight Loss Surgery (Bariatric Surgery) and its Use in Treating Obesity or Treating and Preventing Diabetes*, December 2011, p. 31.

529 *ibid.*, p.5.

530 PwC, *Weighing the cost of obesity: A case for action*, October 2015, p. 32.

531 *ibid.*, p. 42.

532 *ibid.*, p. 32.

533 Natalie Lukas et al., 'The efficacy of bariatric surgery performed in the public sector for obese patients with comorbid conditions', *MJA*, vol. 201, iss. 4, 2014.

individual with type 2 diabetes of between \$9095 and \$15,850, concluding that if an obese person with type 2 diabetes has bariatric surgery, the operation would pay for itself after about a year.

Even using a more up-to-date cost for managing a type 2 patient (the DoH quoted \$15,000), the surgery would appear to pay for itself within a couple of years, assuming type 2 diabetes has gone into remission. Perth bariatric surgeon Professor Jeffrey Hamdorf told the Committee that surgery would pay for itself in about 18 months.<sup>534</sup>

A recent UK (unpublished) evaluation of bariatric surgery found that compared to optimal medical treatment, surgery was associated with total direct medical cost savings of £2110 per type 2 diabetes patient over 5 years. This was comprised of lower treatment costs (incremental difference of £2171 per patient), reduced diabetes-related complications costs (£132 per patient) but higher treatment-associated adverse events costs (-£192 per patient).<sup>535</sup>

The argument from leading bariatric surgeons in the UK was that greater cost-benefits would be realised if bariatric surgery was performed sooner rather than later on patients with type 2 diabetes. Diabetes Australia supports this, saying that improvement in blood glucose is likely to be greatest in people who have only had type 2 diabetes for a short time, before insulin production is significantly reduced.<sup>536</sup>

The case for more bariatric surgery to be performed in the public system has been made repeatedly. The PwC reports says that 'the intervention effectiveness and the link between obesity and lower socioeconomic status suggest that an increase in publicly funded bariatric surgeries may be worth considering'.<sup>537</sup>

As most surgery is carried out in private hospitals with large out-of-pocket expenses for those without private health insurance, the authors of the Sydney study discussed above noted that surgery is 'least accessible to those who are likely to be in greatest need'.<sup>538</sup> Diabetes Australia says that people should have access to safe, effective options for weight management:

*Population-based approaches to prevent obesity should be a priority and funding to treat severe obesity with medical and surgical interventions should be made available more widely.*<sup>539</sup>

DoH gave evidence that in 2019 it will carry out a comprehensive review of the statewide bariatric surgery plan. It stated that the review would inform clinical planning and provide

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534 Professor Jeffrey Hamdorf, *Transcript of Evidence*, 31 October 2018, p. 7.

535 Information provided at a briefing, London, 29 January 2019.

536 Diabetes Australia, *Position Statement: Weight Loss Surgery (Bariatric Surgery) and its Use in Treating Obesity or Treating and Preventing Diabetes*, December 2011, p. 5.

537 PwC, *Weighing the cost of obesity: A case for action*, October 2015, p. 31.

538 Natalie Lukas et al., 'The efficacy of bariatric surgery performed in the public sector for obese patients with comorbid conditions', *MJA*, vol. 201, iss. 4, 2014.

539 Diabetes Australia, *Position Statement: Weight Loss Surgery (Bariatric Surgery) and its Use in Treating Obesity or Treating and Preventing Diabetes*, December 2011, p. 5.

recommendations for service model provision to address current and future demand, taking into account health and cost benefits.

In stating that the whole obesity care pathway will be considered, including criteria for diabetes that ensure the most appropriate patients are being accepted for surgery, they noted that a high standard of pre- and post-operative care is required to ensure good outcomes.

According to the Australian and New Zealand Metabolic and Obesity Surgical Society (ANZMOSS), of around 23,000 bariatric operations performed each year in Australia, less than 10 per cent are performed in public hospitals and only around 4 per cent are fully publically funded. ANZMOSS has formed a taskforce to define the details of a national framework for the delivery of public bariatric surgery services. The framework would assist in advocating for more public bariatric surgical services, which would provide more equitable access and standardisation of services.

#### **Finding 36**

Bariatric surgery is a cost-effective treatment for people with type 2 diabetes.

#### **Finding 37**

Public health patients face a long wait time for bariatric surgery. It is currently five years.

#### **Recommendation 35**

A greater proportion of bariatric procedures be performed in the public health system so that those with the greatest metabolic need can be treated, affording equity of access to all.

#### **Self-management education, awareness and health promotion**

The main management and prevention programs provided for type 2 diabetes are DESMOND and *Let's Prevent*, respectively, which are both managed by Diabetes WA from funds provided by the Commonwealth and the State.

Diabetes WA has provided the cost of delivering DESMOND or *Let's Prevent* for a target of 3000 people across Western Australia in one year. Costs differ depending on whether the programs are delivered in metropolitan, regional or remote areas:

- The cost of running 263 courses for 2100 metropolitan participants is approximately \$603,000, which works out to \$287 per participant or \$2293 per course.
- In regional areas, the cost of running 75 courses for 600 participants is \$467,000, which is \$778 per participant or \$6227 per course.
- In remote areas, the cost of 38 courses for 300 participants is \$424,000, resulting in a much higher cost per participant of \$1413 and cost per course of \$11,158.

- The total cost for the 3000 participants is \$1.49 million, averaging \$498 per participant.<sup>540</sup>

Diabetes WA argues that even if only 15 per cent (450) of the people attending the programs avoided being diagnosed with diabetes or with complications, the investment would break even. It is not clear how this figure was reached, but the cost of just one day of hospitalisation (on average around \$2400) for 450 people would be \$1.08 million.

During 2017–18, Diabetes WA introduced the Patient Activation Measure (PAM) into the evaluation of DESMOND programs run in rural areas, to determine whether the program can increase activation among those who attend. Patient activation is a behavioural concept that provides a better understanding of patient engagement in their healthcare. Patients who are more highly activated have lower rates of hospitalisation, and are more likely to adhere to medications and to adopt healthy behaviours.

An evaluation of 308 people with type 2 diabetes who attended a DESMOND workshop in regional WA and completed two questionnaires showed an average activation increase of 13.4 points. According to Diabetes WA, international evidence suggests that for every one-point increase in a PAM score, the likelihood of hospitalisation for a chronic condition decreases by 1.7%. Thus, a 13-point increase in a PAM score could decrease the likelihood of hospitalisations due to diabetes and its complications by up to 22%. The Diabetes WA *Annual Review 2017–18* states:

*In a WA first for any health department funded program, significant increases were seen in the PAM result for DESMOND, demonstrating a 16.5% reduction in future risk of diabetes complications and hospitalisation demonstrating potential cost savings to the tertiary system.*<sup>541</sup>

Diabetes WA says that the PAM evaluation will be used across all DESMOND and Smart series programs, including in the metropolitan area, to enable a quantifiable assessment of predicted cost savings to the health system.<sup>542</sup>

A cost-effectiveness analysis of DESMOND, which was compared with usual care in people with newly diagnosed type 2 diabetes, was conducted in Leicester in 2010. Outcomes were measured in incremental costs and quality adjusted life years (QALYs) gained.

The study found that DESMOND was a low cost and likely cost effective intervention. Attendees were encouraged to decide on their own goals, which often included weight loss and smoking cessation. These outcomes were both significantly improved in the trial. Although HbA1c (three-month blood glucose) level was not improved in the trial, the authors suggest this may have been because improvements in blood glucose levels

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540 Mrs Sophie McGough, Diabetes WA, Letter, 15 March 2019, p. 1.

541 Diabetes WA, *Annual Review 2017–18*, p. 42.

542 *ibid.*, p. 48.

were also seen in the comparison group, which may have masked any effect of the intervention.<sup>543</sup>

The study found that DESMOND targets multiple risk factors and as such, the overall benefit of what are often small changes needed to be considered. They found that the collective mean estimated benefit of the changes arising from the DESMOND intervention were sufficient to outweigh the (low) intervention cost per patient. The estimated mean health gains as measured by QALYs gained were equivalent to half a month of full health, which as 'an economically adequate return for a low cost investment'. In other disease areas, they note, treatments could cost tens of thousands of pounds per patient for the equivalent of several months QALY gain.

The authors note that 'there is a continuum of delivery costs associated with delivering the intervention, ranging from running the intervention extremely efficiently (for example, training a small number of educators and having them deliver the DESMOND program full time) to running it less efficiently (for example, with a high ratio of educators to course sessions).' These factors needed to be considered when setting up a cost-effective DESMOND program.<sup>544</sup>

The results of a randomised controlled trial to assess the cost-effectiveness of delivering the *Let's Prevent* program via the NHS in the UK were published in 2017. The primary outcome being measured was progression to type 2 diabetes during a three-year period. The study found that when participants attended all education sessions there was a significant reduction in the risk of developing type 2 diabetes in the intervention arm compared with standard care.<sup>545</sup>

The cost of the intervention was estimated at £179 in a real-world setting, which was more expensive than standard care. Broadly based estimates of the outcomes of the intervention in terms of QALYs and healthcare costs (which are too complex to present here) found that the intervention was cost-effective using quality-adjusted survival as the main outcome measure.

The authors note that additional follow-up might yield greater quality of life benefits for the intervention group, as the benefits of postponing development of type 2 are not immediately apparent. This would further improve the cost-effectiveness of the intervention. They note that the results of the intervention were sufficiently promising for

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543 A more recent evaluation of DESMOND, also conducted in Leicester, found a statistically significant reduction in HbA1c of 0.96% at six months and 0.70% at 12 months. Sudesna Chatterjee et al., 'Real-world evaluation of the DESMOND type 2 diabetes education and self-management programme', *Practical Diabetes*, vol. 35, no. 1, 2018.

544 M Gillett et al., 'Delivering the diabetes education and self-management for ongoing and newly diagnosed (DESMOND) programme for people with newly diagnosed type 2 diabetes: cost effectiveness analysis', *BMJ*, vol. 341, 2010.

545 When considering all participants (not just those who attended all sessions), the reduction was 26 per cent, which was non-significant.

the NHS to adopt a modified version within the framework of the NHS Diabetes Prevention Programme.<sup>546</sup>

Jane Speight, head of the Australian Centre for Behavioural Research in Diabetes, notes that the National Diabetes Strategy recommends enhancing access to structured self-management education programs and ensuring that peer support programs (either face-to-face, telephone or online) are accessible.

*Serious investment is needed to achieve both of these, although it should be noted that they are much less expensive (and likely more cost-effective) than oral or injectable medications.*<sup>547</sup>

Another aspect of prevention is health promotion campaigns. Curtin University adjunct research fellow Christina Pollard, who has worked on DoH health promotion campaigns, says that a mass media campaign may cost a lot up-front, but in terms of reach per person, the cost is very small.

*once you get awareness up, you can maintain a campaign in a relatively cost-effective way because you have your initial expense up and running. There are lots of different ways with public relations activities to cut the cost of campaigns but they do not cost anywhere near the cost of advertising and promotion that the unhealthy products expend.*<sup>548</sup>

Dr Pollard believes that simply raising awareness of the types of dietary practices that are needed to prevent diabetes would have a big impact on future health costs.

### **Finding 38**

Education self-management programs deliver potentially significant savings in tertiary care for a small investment.

See also Recommendation 5.

### **Doing nothing is the most costly option**

Throughout this inquiry, numerous contributors commented that no one intervention would necessarily halt the rising tide of type 2 diabetes. Rather, a combination of interventions should be implemented.

In its evaluation of obesity prevention interventions, the PwC considered a set of interventions grouped as personal (weight loss management programs, GP interventions), education (parental and school-based), environment (labelling, reformulation, tax on

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546 J Leal et al., 'Cost-effectiveness of a pragmatic structured education intervention for the prevention of type 2 diabetes: economic evaluation of data from the Let's Prevent Diabetes cluster randomised controlled trial', *BMJ Open*, vol. 7, 2017.

547 Jane Speight, 'Behavioural innovation is key to improving the health of one million Australians living with type 2 diabetes', *MJA*, vol. 205, no. 4, August 2016, p. 150.

548 Dr Christina Pollard, Curtin University, *Transcript of Evidence*, 19 September 2018, p. 2.

unhealthy foods) and medical (bariatric surgery, pharmaceuticals). It said it was not the intention that one intervention be prioritised over others.<sup>549</sup>

Implementing the interventions as a set (from 2015 to 2025) would cost \$1.3 billion and lead to savings of \$2.1 billion to society (in those 10 years, in 2015 present value terms), showing a benefit cost ratio of 1.7. The break-even point was six years, with cost savings thereafter. Of the savings, 76 per cent would be to government through reduced healthcare costs, subsidy costs and foregone earnings.<sup>550</sup>

The Baker IDI Heart and Diabetes Institute reports in *Diabetes: the silent pandemic and its impact on Australia* that intensive early intervention for people with pre-diabetes can reduce the risk of developing diabetes by nearly 60 per cent over a three-year period, with an estimated lifetime healthcare cost saving of around \$1087 per person.<sup>551</sup>

*The silent pandemic* notes that it is unlikely that substantial population behaviour changes will occur when interventions are targeted only at individuals.

*The importance of the legislative, physical and attitudinal aspects of the environment in producing health behaviour change is clearly demonstrated by the raft of legal, political and societal changes that have been implemented to successfully reduce smoking rates and improve road safety.*<sup>552</sup>

Australian Council on Smoking and Health executive director Maurice Swanson made a similar remark, citing the success of the anti-smoking campaign.

*No single strategy is going to be effective. There is no silver bullet. What you need to implement is a comprehensive approach. Many evidence-based strategies acting in concert with each other will be successful over time, but it is worth emphasising that overnight success takes time.*<sup>553</sup>

*The silent pandemic* states that with primary prevention strategies, the growth in type 2 diabetes incidence can be slowed while with secondary prevention strategies, 'the impact of the disease on individuals with diabetes, healthcare systems and the economy can be reduced'. However, this required measurement, information sharing and wider adoption of best practices.<sup>554</sup>

Diabetes was included in the National Health Priority list in 1997, but progress on prevention and management in the past two decades seems inconsistent with its priority status.

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549 PwC, *Weighing the cost of obesity: A case for action*, October 2015, p. vi.

550 *ibid.*, p. vii.

551 Baker IDI Heart and Diabetes Institute, *Diabetes: the silent pandemic and its impact on Australia*, (eds), Jonathan Shaw and Stephanie Tanamas, 2012, p. 4

552 *ibid.*, p. 33

553 Mr Maurice Swanson, Australian Council on Smoking and Health, *Transcript of Evidence*, 7 November 2018, p. 2.

554 Baker IDI Heart and Diabetes Institute, *Diabetes: the silent pandemic and its impact on Australia*, (eds), Jonathan Shaw and Stephanie Tanamas, 2012, p. 45.

At the State level, while diabetes is mentioned within the context of chronic conditions and preventative health planning, there seems lack of urgency, with WA lacking its own diabetes strategy and no accountability through annual reporting KPIs.

The DoH, from its evidence, does not appear to be keeping pace with the most recent research and approaches to managing and preventing type 2 diabetes through dietary interventions, and seems unaware of their potential impact. Failing to accord type 2 diabetes the high priority it warrants will be a cost to the community and to the government.

*The silent pandemic* posits that the decline in cardiovascular disease deaths in the past decades (due to the reduced smoking rate, better cholesterol and blood pressure treatments and better management of heart attacks and strokes) may be reversed by the rising prevalence of type 2 diabetes and obesity. Type 2 diabetes is known to increase the risk of cardiovascular disease. The report presents this sobering prospect:

*The consequence of an unchecked rise in the numbers of people with diabetes may be that the children of today will be the first for many centuries to have a shorter life expectancy than their parents or grandparents.<sup>555</sup>*

### Finding 39

Failure to consider type 2 diabetes as a priority within the health system has led to higher health costs as prevalence grows and complications requiring hospital treatment increase. Continued inaction will lead to even higher costs in the future.

### Recommendation 36

The State Government treats type 2 diabetes as a health priority and properly considers the cost-benefits of implementing a suite of prevention and management strategies, which would include:

- delivery of dietary intervention programs to put type 2 diabetes into remission
- publicly funded bariatric surgery for patients with type 2 diabetes who stand to benefit the most metabolically
- group self-management programs
- regulatory measures.



MS J.M. FREEMAN, MLA  
CHAIR

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<sup>555</sup> Baker IDI Heart and Diabetes Institute, *Diabetes: the silent pandemic and its impact on Australia*, (eds), Jonathan Shaw and Stephanie Tanamas, 2012, p. 40.



# Appendix One

## Inquiry Terms of Reference

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Inquiry into the role of diet in type 2 diabetes prevention and management.

The inquiry will consider –

- a. The cost of type 2 diabetes to the community
- b. The adequacy of prevention and intervention programs
- c. The use of restrictive diets to eliminate the need for type 2 diabetes medication
- d. Regulatory measures to encourage healthy eating\*
- e. Social and cultural factors affecting healthy eating\*
- f. Behavioural aspects of healthy eating\* and effective diabetes self-management

with reference to the following groups:

- at-risk adults
- children and adolescents
- Aboriginal communities
- ethnic groups at greater risk of developing diabetes
- people in rural and regional areas

*\*Eating includes consumption of food and beverages (non-alcoholic and alcoholic).*



## Appendix Two

### Committee's functions and powers

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The functions of the Committee are to review and report to the Assembly on:

- a) the outcomes and administration of the departments within the Committee's portfolio responsibilities;
- b) annual reports of government departments laid on the Table of the House;
- c) the adequacy of legislation and regulations within its jurisdiction; and
- d) any matters referred to it by the Assembly including a bill, motion, petition, vote or expenditure, other financial matter, report or paper.

At the commencement of each Parliament and as often thereafter as the Speaker considers necessary, the Speaker will determine and table a schedule showing the portfolio responsibilities for each committee. Annual reports of government departments and authorities tabled in the Assembly will stand referred to the relevant committee for any inquiry the committee may make.

Whenever a committee receives or determines for itself fresh or amended terms of reference, the committee will forward them to each standing and select committee of the Assembly and Joint Committee of the Assembly and Council. The Speaker will announce them to the Assembly at the next opportunity and arrange for them to be placed on the notice boards of the Assembly.



## Appendix Three

### Inquiry process

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The Education and Health Standing Committee resolved to conduct an inquiry into the role of diet in type 2 diabetes prevention and management. The inquiry terms of reference were announced by the Speaker of the Legislative Assembly on 23 August 2018 and the details placed on the Committee's web page.

The Committee wrote to a number of stakeholders inviting submissions, and also advertised for submissions in *The West Australian Newspaper* on 1 September 2018. The Committee received 36 submissions in response (see Appendix Four)

Evidence was also gathered in 11 hearings and 15 briefings. Parties who provided oral evidence to the Committee are listed in Appendix Five.

The Committee travelled to Adelaide and also to the United Kingdom in relation to the Inquiry. They were able to speak directly with a number of expert witnesses in both locations.

The Committee was fortunate in having met with world recognised experts in the prevention and management of type 2 diabetes including Dr David Unwin in Southport, UK, and Professor Roy Taylor in Newcastle, UK. While in the United Kingdom the Committee received a full day of briefings and presentations from staff at the Leicester Diabetes Centre, which has been recognised by the International Diabetes Federation (IDF) as being a Centre of Education and Excellence in Diabetes Care.

This, together with the evidence gathered from interested parties in Western Australia, as well as from those submissions received, form the basis of this report. The Committee remains grateful to all those who have made contributions.



## Appendix Four

### Submissions received

No.	Name	Position	Organisation
1	Mr David Roberts		
2	Mr Ronald Bareis		
3	Mr Craig Dermer		
4	Mr Nicholas Di Lello		
5	Mr KG Blake		
6	Ms Pam Collins		
7	Ms Rachel Pearce	Manager Health Service	Ishar Multicultural Women's Health Centre
8	Ms GM Jegasothy	Retired physiotherapist	
9	Mrs Sophie McGough	Health Services Operations Manager	Diabetes WA
10	Dr David Unwin	General Practitioner	Norwood Surgery, Southport, UK
11	Dr Sanjeev Balakrishnan	Senior Family Physician	Park Medical Group
12	Dr Philip O'Brien	Honorary research fellow	School of Veterinary and Life Sciences, Murdoch University
13	Ms Pip Brennan	Executive Director	Health Consumers' Council
14	Mr Robert Lee		
15	Ms Jennifer Elliott	Dietitian	
16	Ms Jane Martin	Executive Manager	Obesity Policy Coalition
17	Mr Terry Slevin	Chief Executive Officer	Public Health Association of Australia
18	Ms Liz Mountford	Clinical Nutritionist	
19	Mr John Wright	Chief Executive Officer	Metabolic Health Solutions Pty Ltd
20	Dr DJ Russell-Weisz	Director General	Department of Health
21	Mr Graham Lithgo		
22	Mr Michael Lusk		
23	Mr Tom Picton-Warlow	Managing Director	Swimming 365
24	Ms Courtney Mickan & Ms Lorena Chapman	Co-presidents	Australian Health Promotion Association (WA Branch)
25	Dr Katharine Noonan	Executive Officer Policy and Research Lead (Clinical)	Australian Medical Association WA Inc
26	Professor Richard Feinman	Professor of Cell Biology	State University of New York, Downstate Medical Center
27	Dr Joe Kosterich	General practitioner	
28	<i>Closed submission</i>		
29	<i>Closed submission</i>		
30	Ms Dorte Planert		

## Appendix Four

31	Ms Brooke van Blommestein	Manager	WA Country Health Service
32	Ms Jill Tanner		
33	Professor Elizabeth Davis	Head of Department and Paediatric Endocrinologist	Department of Diabetes and Endocrinology (Child and Adolescent Health Service)
34	Dr Hana Krejčí	Gestational diabetes specialist	General University Hospital, Prague, Czech Republic
35	Ms Hannah Ryrie	Professional services dietitian	Dietitians Association of Australia/Australian Diabetes Educators Association
36	Mr Chuck Burger	Manager	Kimberley Community Legal Services



## Appendix Five

### Hearings and briefings

#### Hearings

Date	Name	Position	Organisation
12 September 2018	Mr Mark Shah	Co-lead, Diabetes and Endocrine Health Network	Department of Health
	Prof Timothy Davis	Co-lead, Diabetes and Endocrine Health Network	
19 September 2018	Mrs Patricia Marshall	Public health nutritionist and diabetes educator	Curtin University
	Dr Christina Pollard	Adjunct senior research fellow	
10 October 2018	Mrs Sophie McGough	Health Services Operations Manager	Diabetes WA
17 October 2018	Prof Jennie Brand-Miller	Professor of Human Nutrition; President	University of Sydney; Glycaemic Index Foundation
31 October 2018	Prof Jeffrey Hamdorf	Professor of Surgical Education; consultant surgeon (bariatric surgery)	University of Western Australia
7 November 2018	Mr Maurice Swanson	Executive Director	Australian Council on Smoking and Health
21 November 2018	Ms Carol Rolston	Clinical psychologist	Western Surgical Health, Advance Surgical
21 November 2018	Mrs Christine Kane	General Manager, Strategy & Health Planning	WA Primary Health Alliance
28 November 2018	Dr Andrew Robinson	Acting Assistant Director General	Department of Health
	Dr Duncan James Williamson	Assistant Director General, Clinical Excellence Division	
	Ms Denise Sullivan	Director, Chronic Disease Prevention	
28 November 2018	Dr Andrew Kirke	President; Director; General practitioner	Rural Doctors Association of WA; Rural Clinical School of WA

## Appendix Five

1 March 2019	Ms Joanne Burges	Executive Manager, People and Place	Western Australian Local Government Association
	Ms Kirstie Davis	Policy Manager, Community	

## Briefings

Date	Name	Position	Organisation
28 September 2018	Prof Grant Brinkworth	Principal Research Scientist, CSIRO Health and Biosecurity	Commonwealth Scientific and Industrial Research Organisation (CSIRO)
	Dr Natalie Luscombe-Marsh	Research Scientist, CSIRO Nutrition and Health Group	
	Dr Malcolm Riley	Principal Research Scientist, CSIRO Health and Biosecurity	
28 September 2018	Prof Alex Brown	Aboriginal Health Theme Leader	South Australian Health and Medical Research Institute
28 September 2018	Prof Rebecca Robker	Biomedical scientist	The Robinson Research Institute, School of Medicine, University of Adelaide
21 November 2018	Prof Kerin O'Dea	Retired (formerly Professor of Nutrition and Population Health at University of South Australia)	
28 January 2019	Mr Andrew Selous MP	Members, Health and Social Care Committee	House of Commons, UK Parliament
	Ms Diana Johnson		
29 January 2019	Prof David Napier	Professor of Medical Anthropology; Global academic lead	University College London; Cities Changing Diabetes
29 January 2019	Mr Ahmed Ahmed	Consultant surgeon	British Obesity and Metabolic Surgery Society
	Mr Marco Adamo	Consultant surgeon	
	Dr Alex Miras	Consultant in endocrinology	
29 January 2019	Mr Douglas Twenefour	Deputy Head of Care	Diabetes UK
30 January 2019	Dr David Halpern	Chief Executive	Behavioural Insights Team, UK
	Mr Hugo Harper	Head of Health	

30 January 2019	Dr Jen Unwin	Consultant clinical health psychologist	National Health Service. UK
31 January 2019	Dr David Unwin	General practitioner	Norwood Surgery, Southport, UK
31 January 2019	Ms Charlotte Summers	Chief Operations Officer	Diabetes Digital Media Ltd, UK
	Mr Arjun Panesar	Chief Executive Officer, head of AI	
1 February 2019	Prof Melanie Davies, Dr Sophie O'Connell, Ms Carol Akroyd, Ms Bernie Stribling, Mr Mark Gray, Dr Charlotte Edwardson, Dr Joe Henson, Dr Deirdre Harrington, Dr Emma Baldry, Ms Sally Schreder, Mr Chris Brough, Ms Laura Willcocks, Dr Alison Dunkley		Leicester Diabetes Centre, UK
4 February 2019	Mr Craig Blundred	Obesity Prevention Lead	Newcastle City Council, UK
	Mr Harry Wearing	Policy and Communication Business Partner	
	Cr Kim McGuinness	Cabinet member for Culture, Sport and Public Health	
	Prof Eugene Milne	Director of Public Health	
4 February 2019	Prof Roy Taylor	Professor of Medicine and Metabolism	University of Newcastle



## Appendix Six

### Blood glucose measurement

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There are two main types of blood test for measuring glucose in the blood. Blood taken from a finger prick test and measured by a meter measures the concentration of glucose molecules present in the blood at the time of the test. It is measured in millimoles per litre (mmol/L).

mol is the symbol for a mole, which is defined as the amount of a chemical substance that contains exactly  $6.02214076 \times 10^{23}$  constitutive particles (for example atoms, molecules, ions or electrons). A millimole (mmol) is one-thousandth of a mole.

There are 180.1559 grams of glucose in a mole.

A reading of 3.9 mmol/L means that in each litre of blood there are 3.9 millimoles of glucose. If one mole of glucose is 180.16g, then the concentration of glucose in the blood is 0.7g/ litre.

#### **HbA1C test**

The glycosylated haemoglobin test (HbA1c) is a measurement of average blood sugar levels over the past 10 to 12 weeks and is used to diagnose diabetes and to monitor diabetes management. It is measured in millimoles per mole (mmol/mol).

mmol/mol is the ratio of glycated haemoglobin (mmol) to regular haemoglobin (mol).

The HbA1c test measures how much haemoglobin in the blood has become glycated (chemically bonded with glucose). Glucose molecules in the blood may bind through a chemical reaction to the red blood cells. The more glucose present, the more likely they will become attached. Once glycated (bound), the glucose stays attached for the life of the blood cell, which is about three months. HbA1c measures the proportion of glucose molecules bound to haemoglobin at the time of testing.

Normal range: Below 42 mmol/mol

Prediabetes: 42 to 47 mmol/mol

















Diabetes: 48 mmol/mol

Source: diabetes.co.uk



## Appendix Seven

### Teaspoon of sugar equivalents of specific foods

 <b>Public Health Collaboration</b>		Informing Healthy Decisions	Find out more @ <a href="http://www.PHCuk.org/sugar">www.PHCuk.org/sugar</a>
Food Item	Glycaemic Index	Serving Size	How does each food item affect blood glucose compared with one 4g teaspoon of table sugar?
Basmati rice	69	150g	10.1 
White potato (Boiled)	96	150g	9.1 
Pure Apple Juice	41	200ml	8.6 
Cornflakes	93	30g	8.4 
French Fries (Baked)	64	150g	7.5 
Coco pops	77	30g	7.3 
Spaghetti (White Boiled)	39	180g	6.6 
Banana	62	120g	5.9 
Wholegrain Barley Bread	85	30g	5.5 
Bran Flakes	74	30g	4.8 
Sweetcorn (Boiled)	60	80g	4.0 
Special K Cereal	54	30g	4.0 
White Bread	71	30g	3.7 
Wholemeal (Small Slice)	74	30g	3.0 
Broccoli	54	80g	0.2 
Eggs	0	60g	0

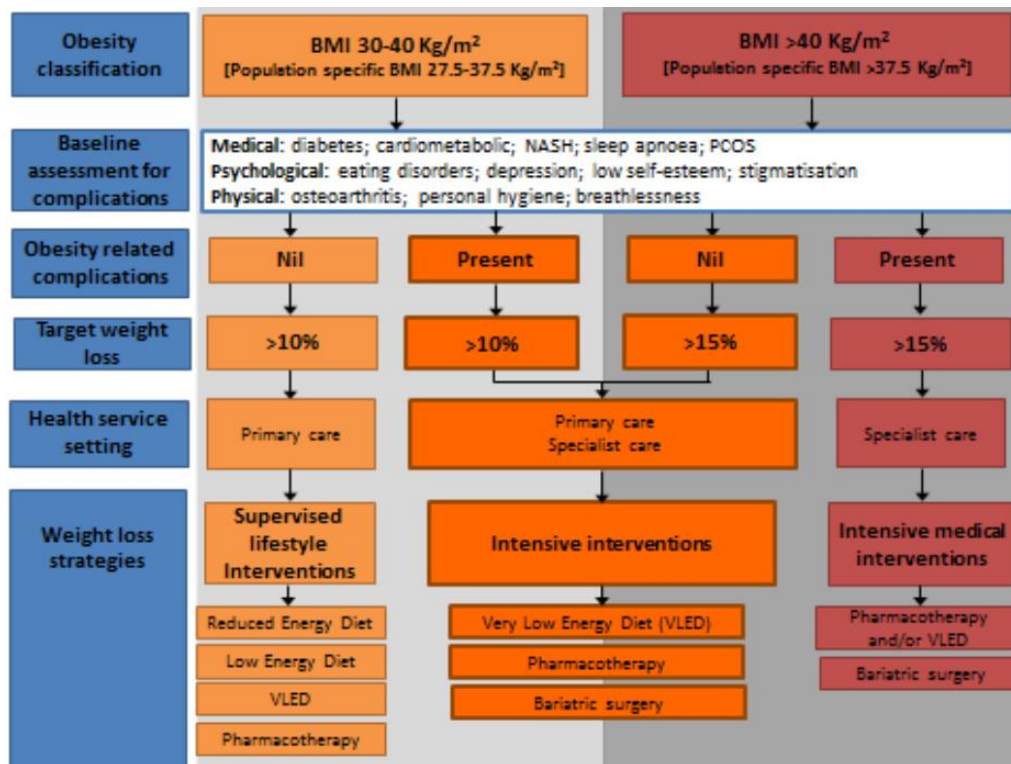
Source: Public Health Collaboration, *Sugar Equivalent Infographic*, provided courtesy of Dr David Unwin, accessed 2 April 2019, < <https://phcuk.org/sugar/> >.





## Appendix Eight

### Australian algorithm for the management of obesity



Source: 'The Australian Obesity Management Algorithm position paper', accessed 2 April 2019, <<https://diabetessociety.com.au>>



## Appendix Nine

### Hotspots for diabetes complications

A hotspot is an area that shows a rate of hospitalisation (specifically inpatient admission as opposed to Emergency Department attendance) of at least 1.5 times the state average for a particular condition.

Metropolitan area	Regional and remote Western Australia
Armadale – Wungong – Brookdale	Carnarvon
Balga – Mirrabooka	Chittering
Bassendean – Eden Hill – Ashfield	Collie
Callista	Derby – West Kimberley
Chittering	Geraldton
Cooloongup	Dowerin
Girrawheen	Geraldton – East
Hazelmere – South Guildford	Gnowangerup
Maylands	Halls Creek
Middle Swan – Herne Hill	Kalgoorlie
Seville Grove	Katanning
	Kununurra
	Leinster – Leonora
	Meekatharra
	Moora
	Mukinbudin
	Roebourne
	Roebuck
	South Hedland

*Note: Chittering is in both lists because some parts are designated regional and other parts metropolitan.*

Source: Department of Health, *Lessons of Location: Potentially Preventable Hospitalisation Hotspots in Western Australia 2017*, WA Primary Health Alliance, p. 22.



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Parliament House  
4 Harvest Terrace, West Perth WA 6005  
Telephone: +61 8 9222 7222  
Email: [laco@parliament.wa.gov.au](mailto:laco@parliament.wa.gov.au)  
Website: [www.parliament.wa.gov.au](http://www.parliament.wa.gov.au)